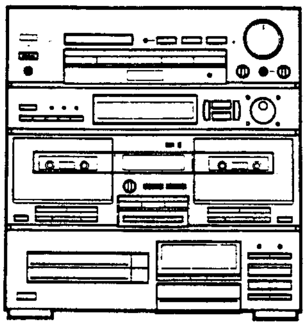
Service Manual

PIONEER

The Art of Entertainment



ORDER NO.
ARP2139

STEREO TWIN CD CASSETTE DECK AMPLIFIER

XD-Z84T

MODEL XD−Z84T HAS FOLLOWING VERSIONS :

Type	Power requirement	Export destination
HE	AC220V, 240V (Switchable) *	European continent
HEWZIW	AC220V, 240V (Switchable) *	Germany and Italy

* Change the jumper wires of assembly board.

- **This manual is applicable to the XD−Z84T/HE and HEWZIW types.**
- **As to the HEWZIW type, refer to pages 80 and 81.**
- **This product is a component of a system. As to the system composition, refer to the system manual.**
- **As to the MECHANISM DESCRIPTION, refer to the PD−Z74T service guide (ARP2144).**
- **For adjustment refer to ADJUSTMENTS FOR XD−Z54T, XD−Z84T, DC−Z94, DC−Z84 and DC−Z74 (ARP2140).**

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1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!

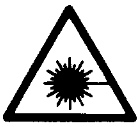
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:

USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!

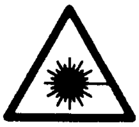
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.



LASER
Kuva 1
Lasersateilyn
varoitusmerkki

WARNING!

DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.



LASER
Picture 1
Warning sign for
laser radiation

IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

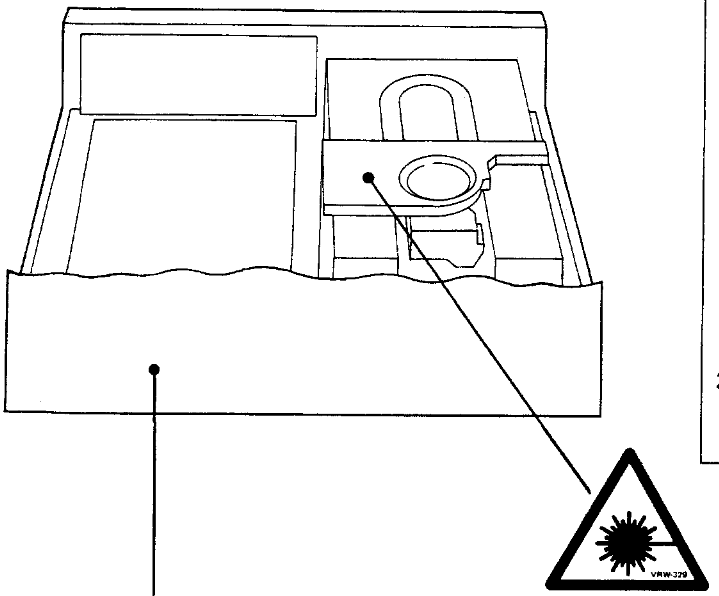
LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

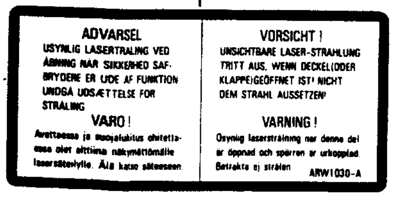
LABEL CHECK (TWIN type)

Additional Laser Caution

1. Laser Interlock Mechanism
   The ON/OFF (ON : low level/OFF : high level) status of the U (S601) and L (S603) switches for detecting the disc clamp state is detected by the system microprocessor, and the design prevents laser diode oscillation when both switches U and L are OFF (high level).
   Thus, the interlock will no longer function if switches U (S601) and L (S603) are deliberately shorted.
   Laser diode oscillation will continue if pins 2 and 3 of CXA1471S (IC101) are connected to ground or pin 20 is connected to high level (ON) or the terminals of Q101 are shorted to each other (fault condition).
2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 or higher laser beam.



HE, HEWZIW and HB types



ADVARSEL
USYNLIG LASERTRALING VED ÅBNING NÅR SIKKERHED SAF-BRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRALING

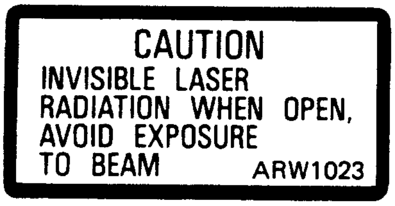
VARO!
Avattaessa ja suojalukitus ohitetta-essa olet alttiina näkymättömälle lasersäteilylle. Äla katso säteeseen.

VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL(ODER KLAPPE)GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!

VARNING!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen

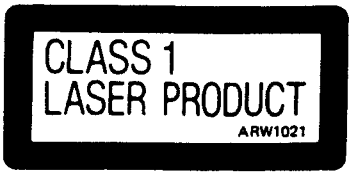
ARW1030-A

HE and HEWZIW types



CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM
ARW1023

HB type



CLASS 1
LASER PRODUCT
ARW1021

HE, HB and HEWZIW types

2. EXPLODED VIEWS, PACKING AND PARTS LIST

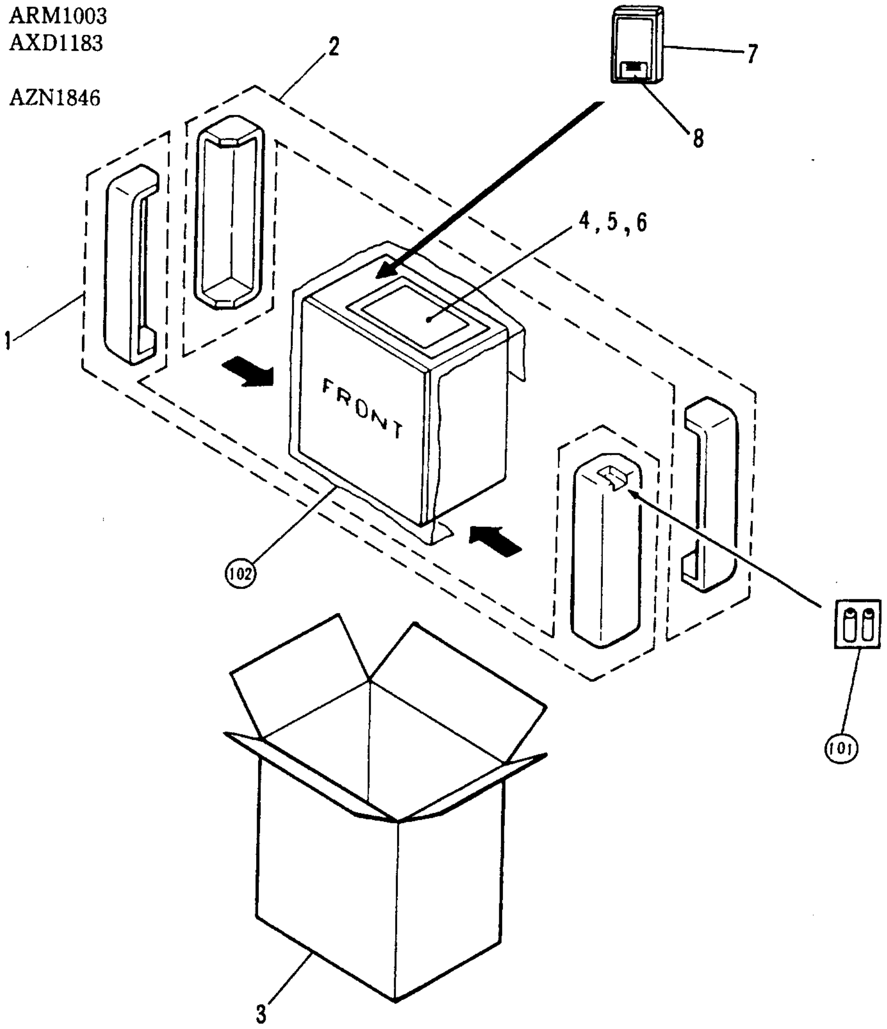
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

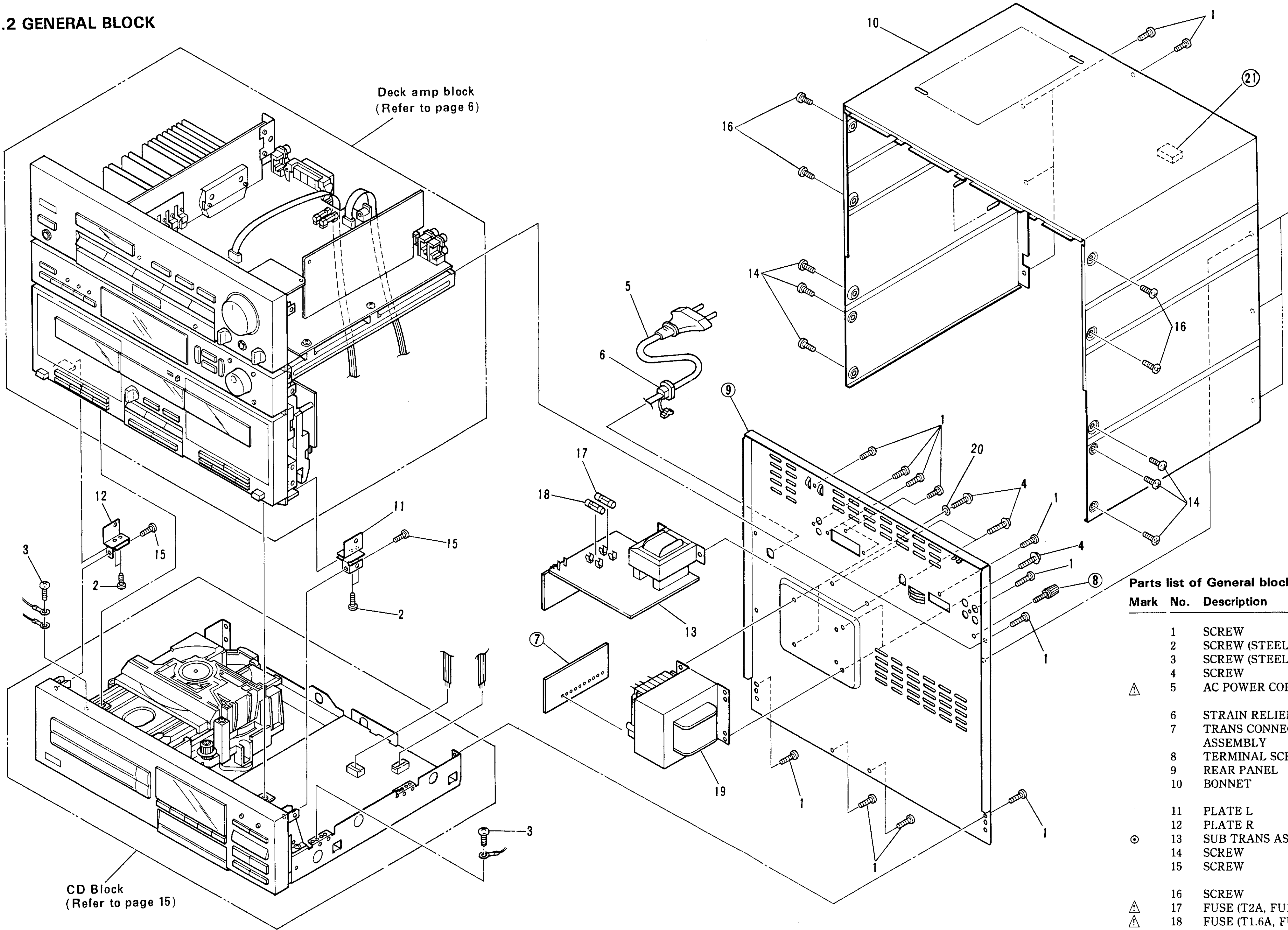
2.1 PACKING

Parts list of Packing

Mark	No.	Description	Parts No.
	1	FRONT PAD L, R	AHA1406
	2	REAR PAD L, R	AHA1407
	3	PACKING CASE	AHD1968
	4	OPERATING INSTRUCTIONS (Duch, Swedish, Spanish, Portuguese)	ARC1242
	5	OPERATING INSTRUCTIONS (English, German, French, Italian)	ARE1173
	6	CAUTION CARD	ARM1003
	7	REMOTE CONTROL UNIT (CU-DC022)	AXD1183
	8	BATTERY COVER	AZN1846
	101	BATTERY (R03, AAA)	
	102	PACKING SHEET	



2.2 GENERAL BLOCK


Deck amp block
(Refer to page 6)
CD Block
(Refer to page 15)
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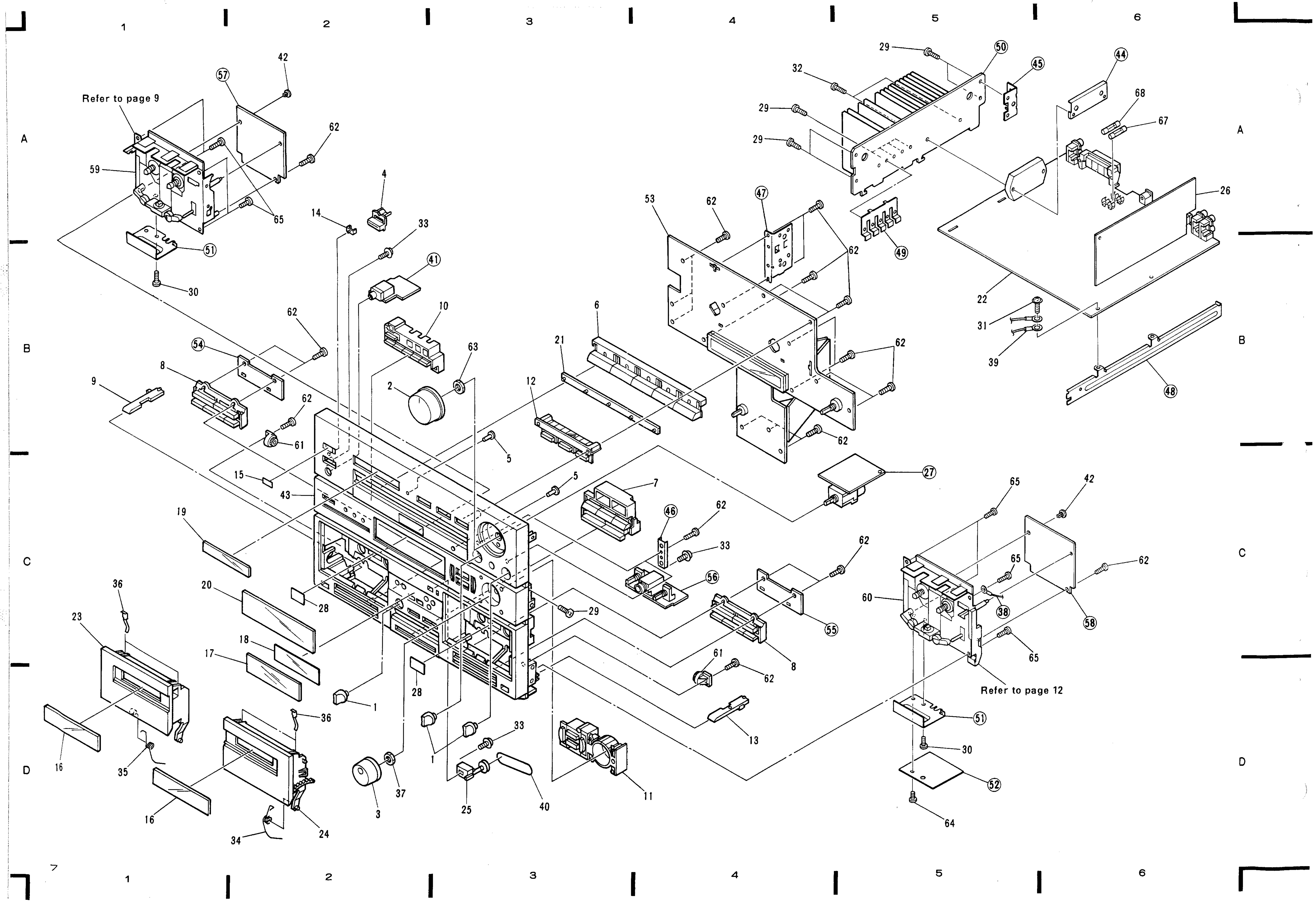
Parts list of General block

Mark	No.	Description	Parts No.
	1	SCREW	ABA–298
	2	SCREW (STEEL)	ABA1007
	3	SCREW (STEEL)	ABA1009
	4	SCREW	ABA1082
⚠	5	AC POWER CORD	ADG1049
	6	STRAIN RELIEF	AEC–882
	7	TRANS CONNECT ASSEMBLY	
	8	TERMINAL SCREW	
	9	REAR PANEL	
	10	BONNET	ANE1275
	11	PLATE L	ANG1536
	12	PLATE R	ANG1537
⊙	13	SUB TRANS ASSEMBLY	AWR1056
	14	SCREW	BBZ30P080FZK
	15	SCREW	VPZ30P080FMC
	16	SCREW	VPZ30P080FZK
⚠	17	FUSE (T2A, FU101)	AEK–017
⚠	18	FUSE (T1.6A, FU102)	AEK–405
⚠	19	POWER TRANSFORMER (T2001)	ATS1321
	20	WASHER	ABE–052
	21	CUSHION RUBBER M	

2.3 DECK AMP BLOCK

Parts list of Deck amp block

Mark	No.	Description	Parts No.
	1	ROTARY KNOB	AAB1136
	2	VOL KNOB	AAB1200
	3	ROTARY KNOB	AAB1202
	4	POWER BUTTON	AAD1674
	5	KIN BUTTON	AAD1682
	6	FUNCTION BUTTON	AAD1894
	7	REC. COPY BUTTON	AAD1895
	8	DECK PLAY BUTTON	AAD1896
	9	EJECT BUTTON L	AAD1898
	10	GEQ BUTTON	AAD1899
	11	CURSOR BUTTON	AAD1900
	12	AI BUTTON	AAD1901
	13	EJECT BUTTON R	AAD1922
	14	LENS (POWER IND)	AAK1800
	15	FILTER (REC)	AAK1812
	16	DECORATIVE PLATE (DOOR)	AAK2065
	17	DECORATIVE PLATE A (DECK)	AAK2071
	18	DECORATIVE PLATE B (DECK)	AAK2072
	19	AI DECORATIVE PLATE	AAK2073
	20	DECORATIVE PLATE (GEQ)	AAK2074
	21	INDICATOR LENS	AAK2075
⊙	22	AF ASSEMBLY	AWZ3336
	23	CASSETTE DOOR (R)	AAN1250
	24	CASSETTE DOOR (L)	AAN1251
	25	COUNTER	AAW1009
⊙	26	GEQ ASSEMBLY	AWX1048
	27	VR ASSEMBLY	
	28	FABEL (PAPER)	AAX1301
	29	SCREW	ABA−298
	30	SCREW (STEEL)	ABA1009
	31	SCREW (STEEL)	ABA1011
	32	SCREW	ABA1018
	33	SCREW (STEEL)	ABA1095
	34	DOOR SPRING L	ABH1068
	35	DOOR SPRING R	ABH1069
	36	KEEP PLATE	ABK1016
	37	NUT	ABN1016
	38	GROUND LEAD	
	39	GROUND LEAD	
	40	COUNTER BELT	AEB1161
	41	HEAD PHONE ASSEMBLY	
	42	NYLON RIVET	AEC1160
	43	FRONT PANEL	AMB1745
	44	PACK HOLDER	
	45	HEAT SINK HOLDER B	
	46	PRESSURE METAL	
	47	HEAT SINK HOLDER A	
	48	PCB HOLDER	
	49	HOLDER	
	50	HEAT SINK	
	51	SHIELD PLATE (MECHA)	
	52	SHIELD PLATE	
⊙	53	DISPLAY ASSEMBLY	AWZ3351
	54	1 MECHA SW ASSEMBLY	
	55	2 MECHA SW ASSEMBLY	
	56	MIC BALANCE ASSEMBLY	
	57	1 MECHA ASSEMBLY	
	58	2 MECHA ASSEMBLY	
	59	1 MECHA UNIT	EXK2020
	60	2 MECHA UNIT	EXK2010
	61	DAMPER ASSEMBLY	AXA1008
	62	SCREW	BPZ26P080FMC
	63	NUT	NK90FUC
	64	SCREW	PCZ30P040FMC
	65	SCREW	VPZ30P080FMC
	66	....	
⚠	67	FUSE (T1.6A, FU151)	AEK−405
⚠	68	FUSE (T1.6A, FU152)	AEK−405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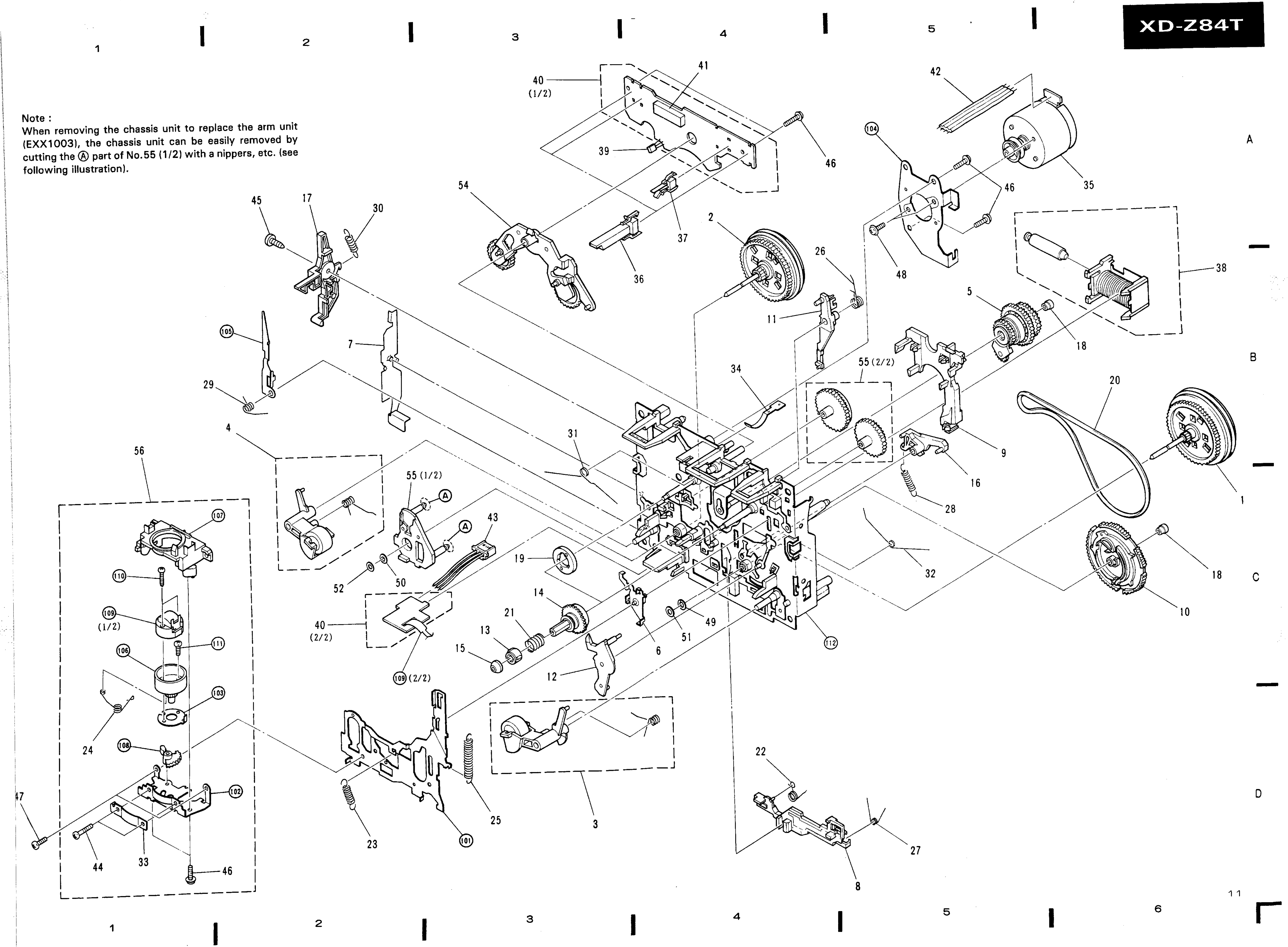
Refer to page 9
Refer to page 12

2.4 1 MECHA UNIT (EXK2020)

Parts list of 1 Mecha unit

Mark	No.	Description	Parts No.
	1	FLYWHEEL UNIT (FWD)	EXA1102
	2	FLYWHEEL UNIT (RVS)	EXA1103
	3	ROLLER UNIT (FWD)	EXA1104
	4	ROLLER UNIT (RVS)	EXA1105
	5	LIMITER UNIT	EXA1106
	6	LEVER UNIT	EXA1107
	7	ARM	AZN2063
	8	NR LEVER	ENV1155
	9	BRAKE	ENV1157
	10	CAM GEAR	ENV1158
	11	LOCK ARM	ENV1159
	12	NR ARM	ENV1163
	13	REEL COLLAR	ENV1164
	14	REEL	ENV1170
	15	REEL BUSH	ENV1178
	16	ARM	ENV1181
	17	ARM	AZN2069
	18	BUSH	ENV1184
	19	MAGNET	ENV1185
	20	BELT	ENT1015
	21	SPRING	EBH1201
	22	SPRING	EBH1202
	23	SPRING	EBH1203
	24	SPRING	EBH1204
	25	SPRING	EBH1208
	26	SPRING	EBH1209
	27	SPRING	EBH1210
	28	SPRING	EBH1211
	29	SPRING	EBH1255
	30	SPRING	EBH1213
	31	SPRING	EBH1220
	32	SPRING	EBH1256
	33	SPRING	EBL1013
	34	SPRING	EBL1014
	35	MOTOR UNIT	EXA1108
	36	SWITCH (Detect)	ESN1003
	37	SWITCH (Mode)	ESN1004
	38	SOLENOID	EXP1005
	39	HALL IC	DN6847SE
	40	P.C.BOARD	ENX1002
	41	CONNECTOR	EKS1013
	42	LEAD WIRE	EDD1003
	43	CONNECTOR	EDE1009
	44	SCREW	EBA1020
	45	SCREW	EBA1021
	46	SCREW (M2 × 8)	ATZ20P080FMC
	47	SCREW	BSZ20P050FMC
	48	SCREW	PMS26P025FUC
	49	WASHER	EBF1008
	50	WASHER	EBF1009
	51	WASHER	EBF1010
	52	WASHER	EBF1011
	53	……………	
	54	ARM UNIT	EXX1002
	55	ARM UNIT	EXX1003
	56	P HEAD ASSEMBLY	EXX1005
	101	HEAD BASE	
	102	BRACKET	
	103	PLATE	
	104	BRACKET	
	105	ARM	
	106	HOLDER	
	107	HOLDER	
	108	GEAR	
	109	P HEAD UNIT	
	110	SCREW	
	111	SCREW	
	112	CHASSIS UNIT	

Note :
When removing the chassis unit to replace the arm unit (EXX1003), the chassis unit can be easily removed by cutting the Ⓐ part of No.55 (1/2) with a nippers, etc. (see following illustration).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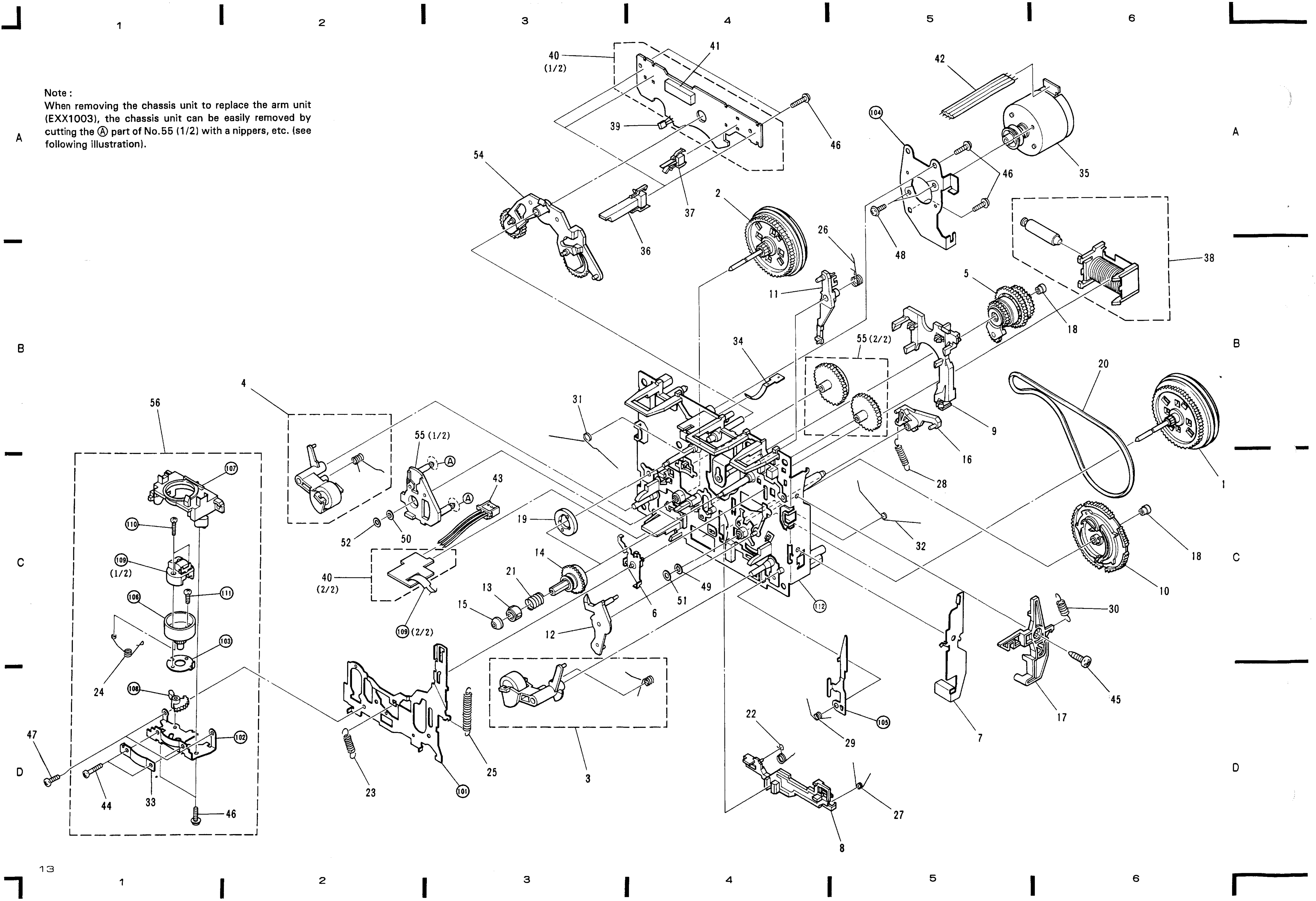
2.5 2 MECHA UNIT (EXK2010)

Parts list of 2 Mecha unit

Mark	No.	Description	Parts No.
	1	FLYWHEEL UNIT (FWD)	EXA1102
	2	FLYWHEEL UNIT (RVS)	EXA1103
	3	ROLLER UNIT (FWD)	EXA1104
	4	ROLLER UNIT (RVS)	EXA1105
	5	LIMITER UNIT	EXA1106
	6	LEVER UNIT	EXA1107
	7	ARM	AZN2064
	8	NR LEVER	ENV1155
	9	BRAKE	ENV1157
	10	CAM GEAR	ENV1158
	11	LOCK ARM	ENV1159
	12	NR ARM	ENV1163
	13	REEL COLLAR	ENV1164
	14	REEL	ENV1170
	15	REEL BUSH	ENV1178
	16	ARM	ENV1181
	17	ARM	AZN2070
	18	BUSH	ENV1184
	19	MAGNET	ENV1185
	20	BELT	ENT1015
	21	SPRING	EBH1201
	22	SPRING	EBH1202
	23	SPRING	EBH1203
	24	SPRING	EBH1204
	25	SPRING	EBH1208
	26	SPRING	EBH1209
	27	SPRING	EBH1210
	28	SPRING	EBH1211
	29	SPRING	EBH1254
	30	SPRING	EBH1213
	31	SPRING	EBH1220
	32	SPRING	EBH1256
	33	SPRING	EBL1013
	34	SPRING	EBL1014
	35	MOTOR UNIT	EXA1108
	36	SWITCH (Detect)	ESN1003
	37	SWITCH (Mode)	ESN1004
	38	SOLENOID	EXP1005
	39	HALL IC	DN6847SE
	40	P.C.BOARD	ENX1002
	41	CONNECTOR	EKS1012
	42	LEAD WIRE	EDD1003
	43	CONNECTOR	EDE1008
	44	SCREW	EBA1020
	45	SCREW	EBA1021

Mark	No.	Description	Parts No.
	46	SCREW (M2×8)	ATZ20P080FMC
	47	SCREW	BSZ20P050FMC
	48	SCREW	PMS26P025FUC
	49	WASHER	EBF1008
	50	WASHER	EBF1009
	51	WASHER	EBF1010
	52	WASHER	EBF1011
	53	....	
	54	ARM UNIT	EXX1002
	55	ARM UNIT	EXX1003
	56	R/P HEAD ASSEMBLY	EXX1004
	101	HEAD BASE	
	102	BRACKET	
	103	PLATE	
	104	BRACKET	
	105	ARM	
	106	HOLDER	
	107	HOLDER	
	108	GEAR	
	109	R/P HEAD UNIT	
	110	SCREW	
	111	SCREW	
	112	CHASSIS UNIT	

Note :
When removing the chassis unit to replace the arm unit (EXX1003), the chassis unit can be easily removed by cutting the Ⓐ part of No.55 (1/2) with a nippers, etc. (see following illustration).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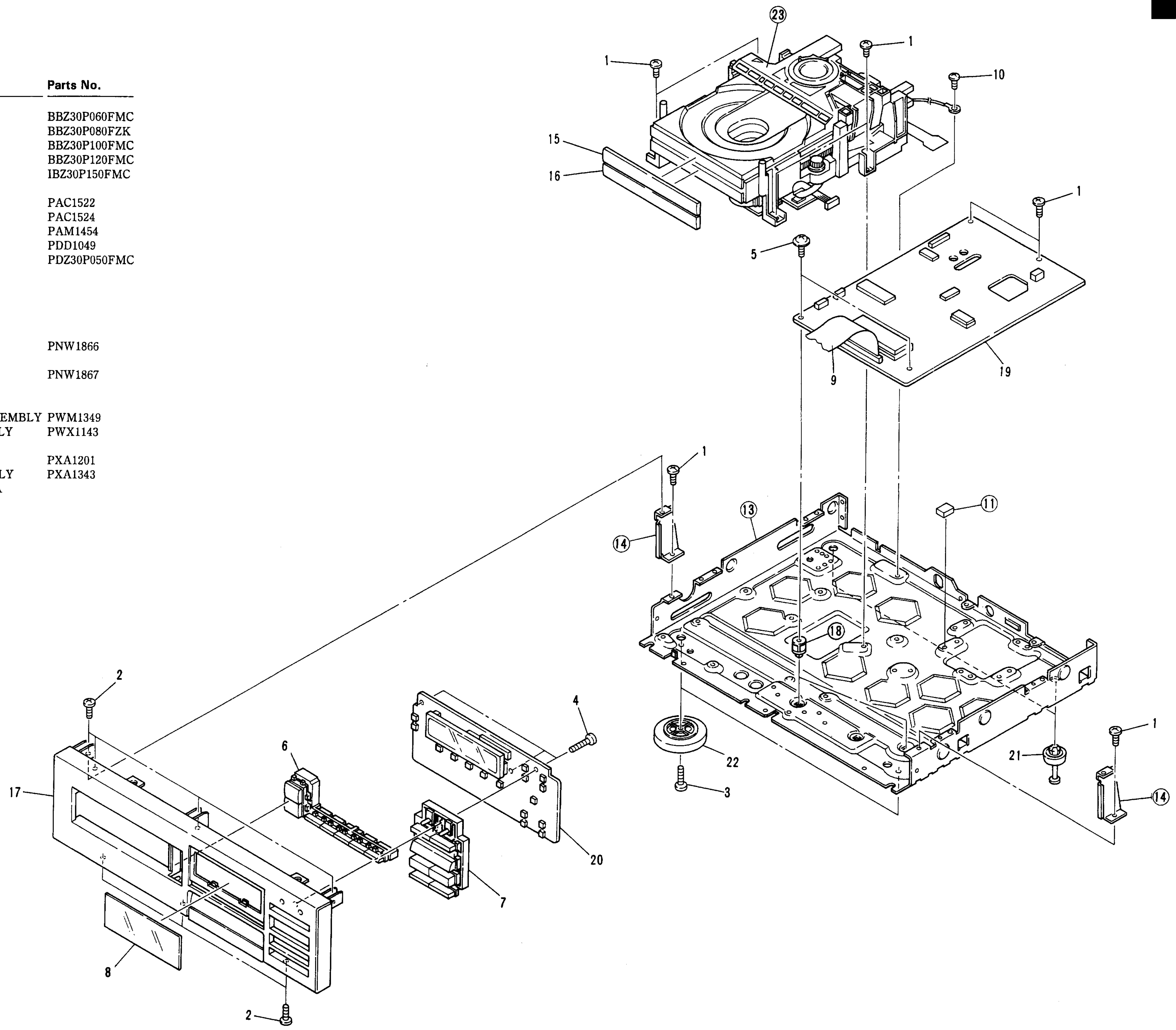
2.6 CD BLOCK

Parts list of CD block

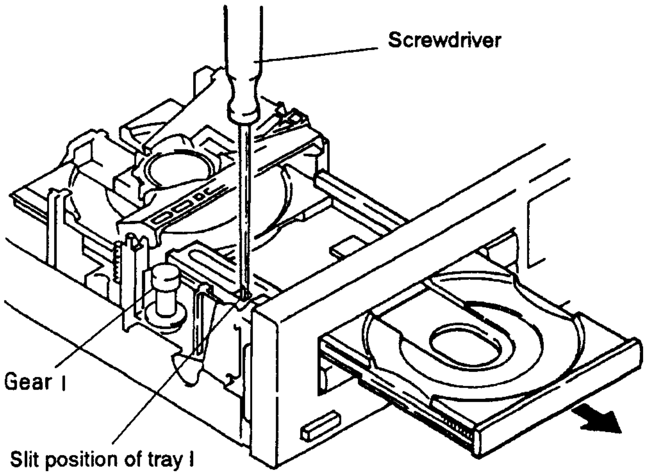
Mark	No.	Description	Parts No.
	1	SCREW	BBZ30P060FMC
	2	SCREW	BBZ30P080FZK
	3	SCREW	BBZ30P100FMC
	4	SCREW	BBZ30P120FMC
	5	SCREW	IBZ30P150FMC
	6	DISC BUTTON	PAC1522
	7	PLAY BUTTON	PAC1524
	8	WINDOW	PAM1454
	9	30P F•F•C/30V	PDD1049
	10	SCREW	PDZ30P050FMC
	11	SPACER	
	12	....	
	13	UNDER BASE	
	14	ANGLE	
	15	NAME PLATE 1	PNW1866
	16	NAME PLATE 2	PNW1867
	17	FUNCTION PANEL	
	18	PCB SPACER	
⚠ ⊙	19	MOTHER BOARD ASSEMBLY	PWM1349
⚠ ⊙	20	SUB BOARD ASSEMBLY	PWX1143
	21	FOOT ASSEMBLY	PXA1201
	22	INSULATOR ASSEMBLY	PXA1343
	23	TWIN TORAY MECHA ASSEMBLY	



2.7 REMOVING AND MOUNTING EACH BLOCK

● REMOVAL OF TRAY I AND TRAY II

1. Open the tray I.
2. Insert the flat blade screwdriver into the slit in the left of tray I. Pull out the tray I by pushing the screwdriver.


Screwdriver
Gear I
Slit position of tray I

* When remove the tray II, open it first, insert the flat blade screwdriver into the slit in the right of tray II, and pull out the tray by pushing the screwdriver.

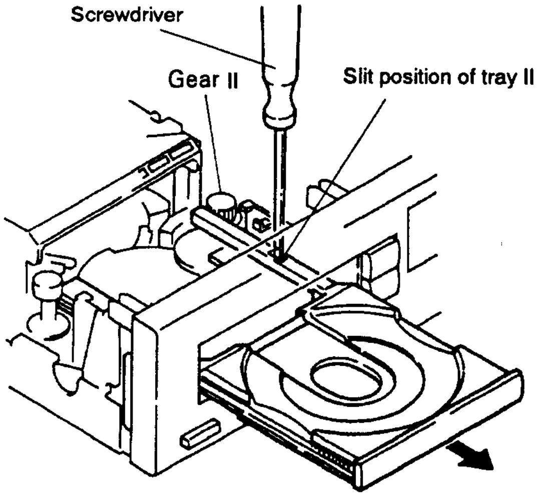

Screwdriver
Gear II
Slit position of tray II

Fig. 1

● MOUNTING OF TRAY I

1. Set the disc II to the clamp position and open the tray I.
2. Align the 1st tooth of tray I to ungrooved portion of gear I, and insert the tray I.

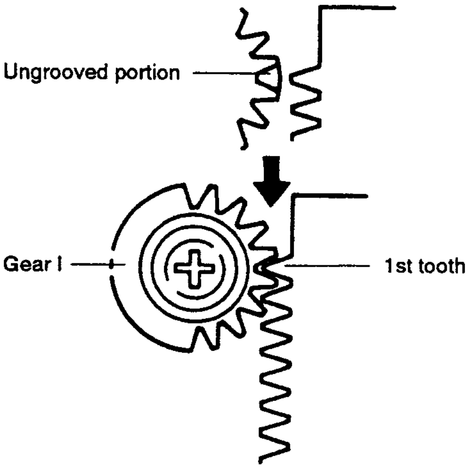

Ungrooved portion
Gear I
1st tooth

Fig. 2

● MOUNTING OF TRAY II

1. Set the disc I to the clamp position and open the tray II.
2. Align the 1st tooth of tray II to ☐ marked position of gear II, and insert the tray II.

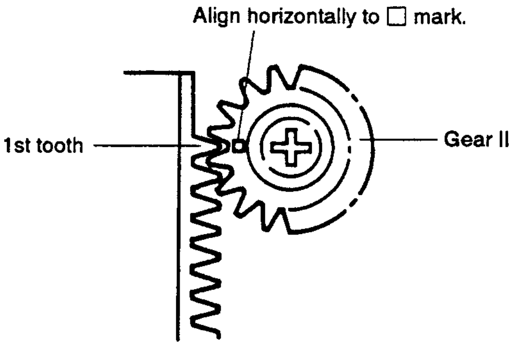

Align horizontally to ☐ mark.
1st tooth
Gear II

Fig. 3

● MOUNTING AND POSITIONING OF MAIN CAM, FOLLOW GEAR, GEAR I AND GEAR II

Set the following gears to the position as shown by arrows.

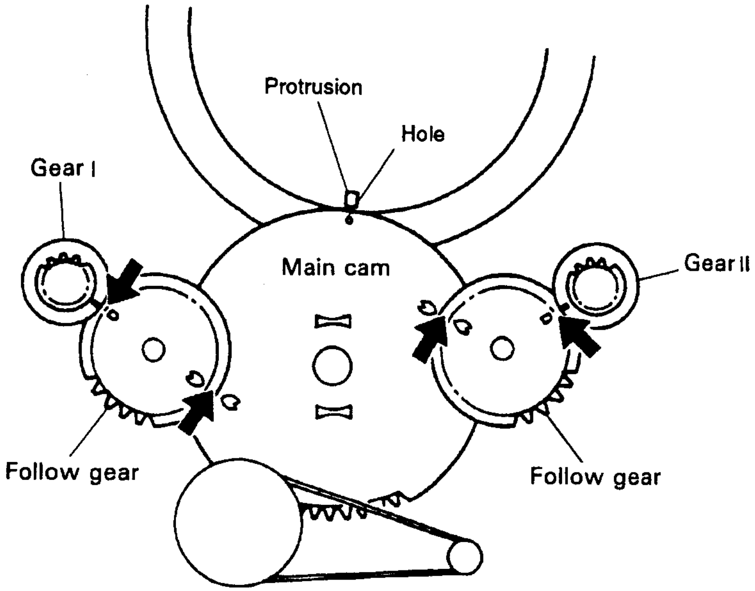

Protrusion
Hole
Gear I
Main cam
Gear II
Follow gear
Follow gear

Fig. 4

● MOUNTING OF CLAMPER ASSEMBLY

Mount the clamper assembly by aligning the protrusion portion as shown in the figure.

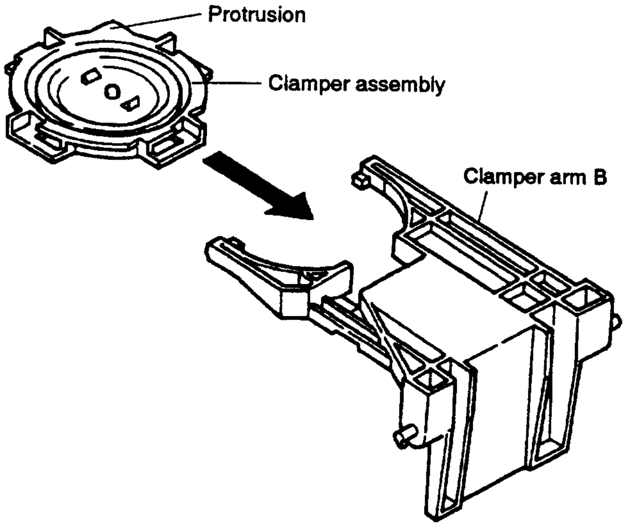

Protrusion
Clamper assembly
Clamper arm B

Fig. 5

2.8 CD MECHA UNIT

Parts List of Mechanism Section

Mark	No.	Symbol & Description	Part No.
	1	Clamp spring	PBH1103
	2	Lever spring	PBH1104
	3	Belt	PEB1106
	4	Motor pulley	PNW1634
	5	Tray 1	PNW1839
	6	Tray 2	PNW1840
	7	Sub tray	PNW1841
	8	Loading base	PNW1842
	9	Main cam	PNW1843
	10	Follow gear	PNW1844
	11	Gear 1	PNW1845
	12	Gear 2	PNW1846
	13	Idler gear	PNW1847
	14	Clamper arm U	PNW1850
	15	Clamper arm B	PNW1851
	16	Clamp cam	PNW1852
	17	Float base	PNW1853
	18	Lock lever	PNW1854
	19	Motor	PXM1010
	20	Floating rubber	PEB1014
	21	Floating rubber	PEB1132
	22	Screw	PBA1048
	23	Screw	IPZ30P080FMC
	24	Screw	IPZ20P080FMC
	25	Chip capacitor	CKSYF105Z16
	26	Screw	JFZ20P025FMC
	27	Drive spring	PBH1084
	28	Plate spring	PBK1057
	29	Belt	PEB1072
	30	Drive screw	PLA1003
	31	Guide bar	PLA1071
	32	Half nut	PNW1605
	33	Disc table	PNW1608
	34	Pulley	PNW1634
	35	Earth spring	PBH1009
	36	Push switch	DSG1014
	37	Spindle motor assembly (with oil)	PEA1028
	38	Pick – up assembly	PEA1030
	39	Screw	BPZ20P080FZK
	40	Screw	PMZ20P030FMC
	41	Motor (CARRIAGE)	PXM1013
	42	Screw	PBZ30P080FMC
	43	Semi – fixed resistor	PCP1008
	44	Screw	PMZ26P040FMC
	45	Gear pulley	PNW1848
	46	Push spring	PBH1105
	47	Screw	IBZ30P200FMC
	48	Pulley	PNW1066
	49	Screw	IPZ30P120FMC

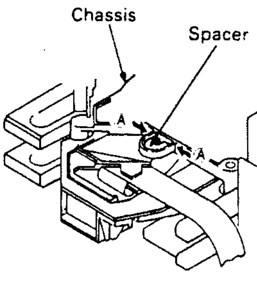
Mark	No.	Symbol & Description	Part No.
	101	Yoke	
	102	Magnet	
	103	Clamper holder	
	104	Clamper S	
	105	Mechanism P.C.B assembly	
	106	Servo mechanism assembly	
	107	Connector assembly (6P)	
	108	Mechanism chassis	
	109	Motor base	
	110	Mechanism base	
	111	Actuater cover	
	112	Sub panel plate	

• How to install the disc table

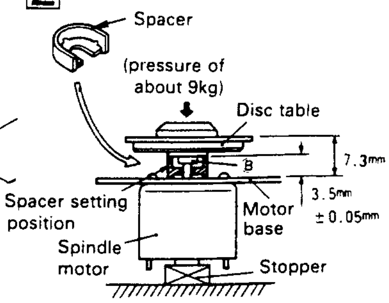
1 Use nippers or other tool to cut the two sections marked Ⓐ in figure 1. Then remove the spacer.

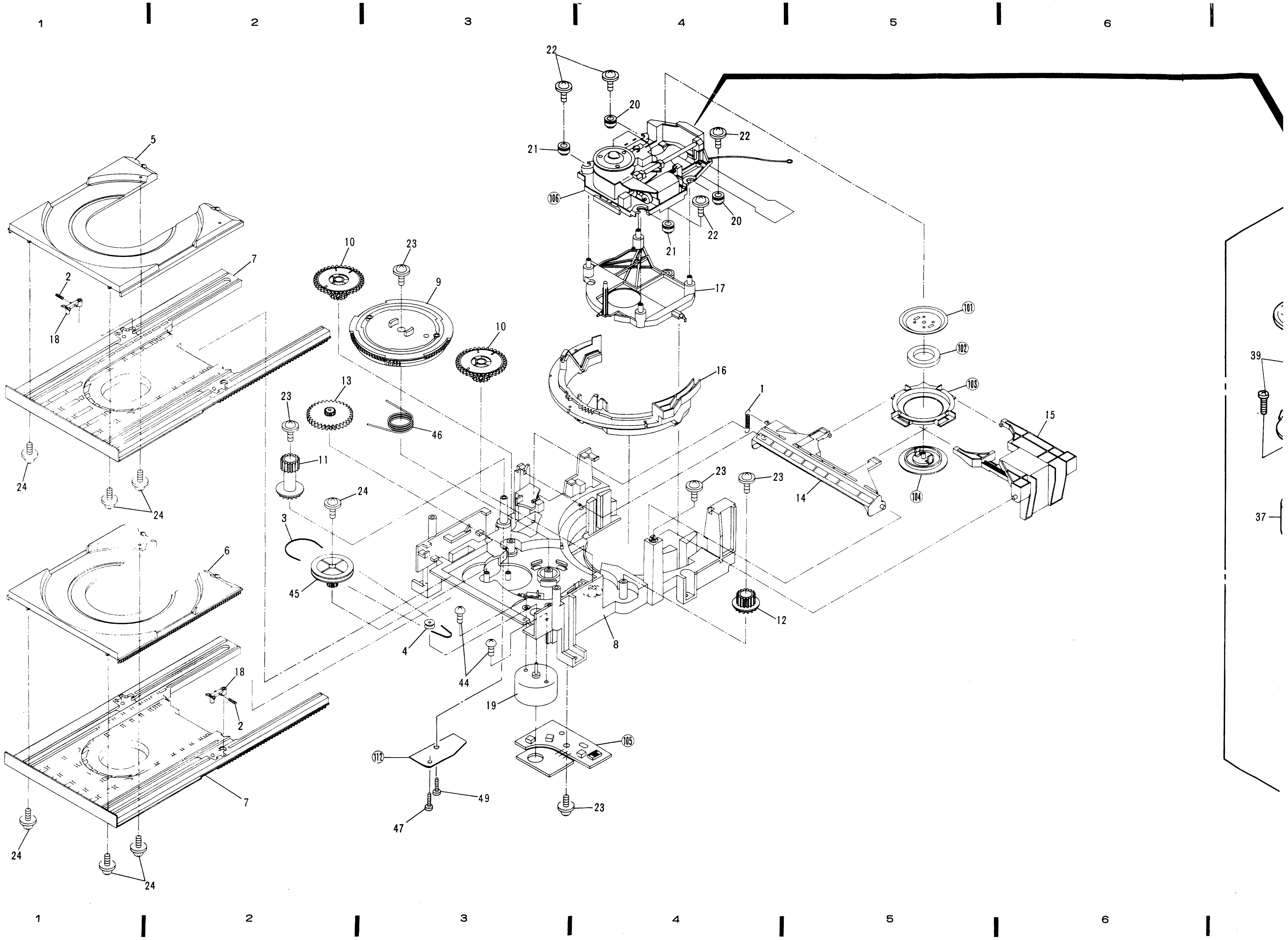
2 While supporting the spindle motor shaft with the stopper, put spacer on top of the motor base (angled so it doesn't touch section Ⓑ), and stick the disc table on top (takes about 9kg pressure). Take off the spacer.

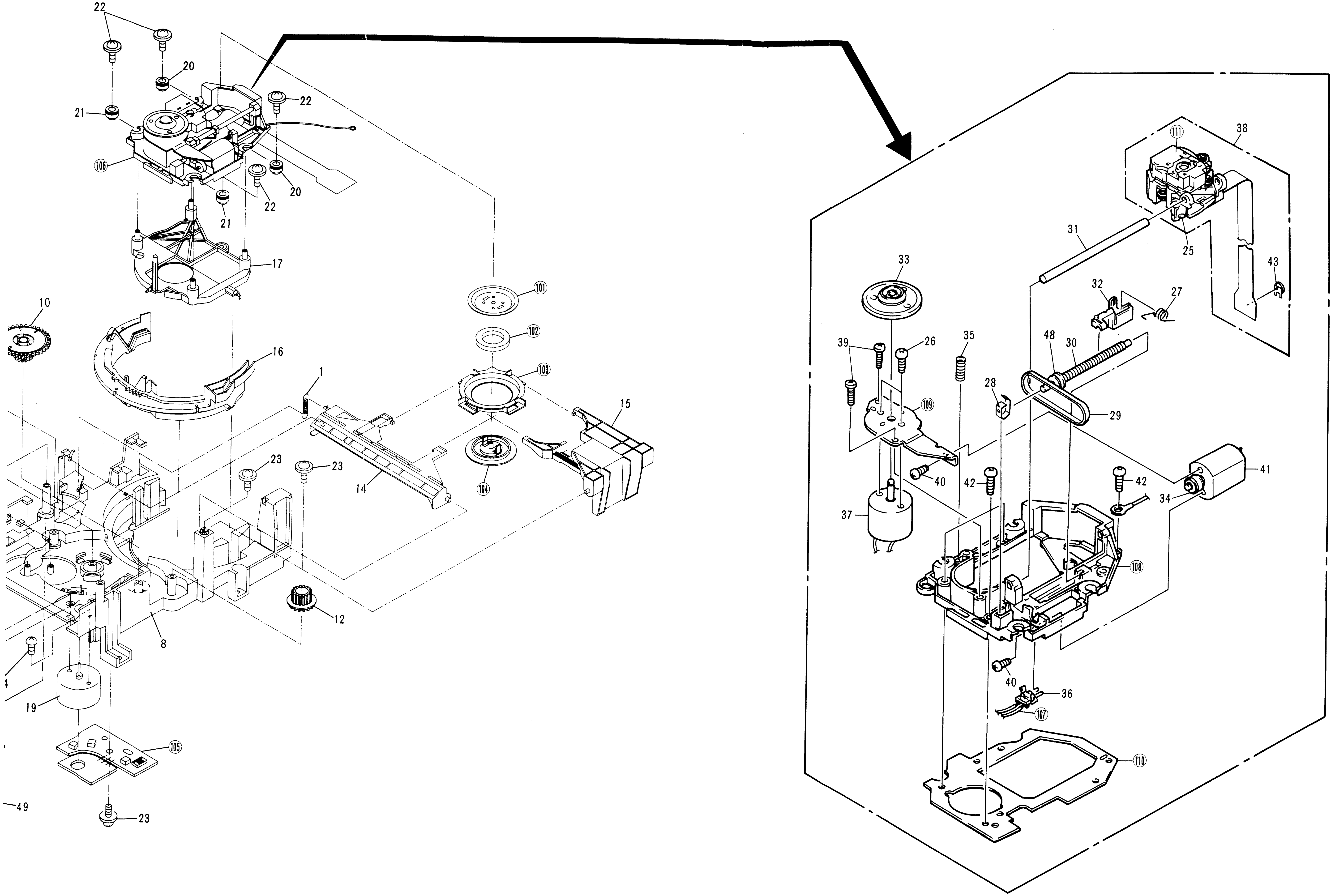
1



2

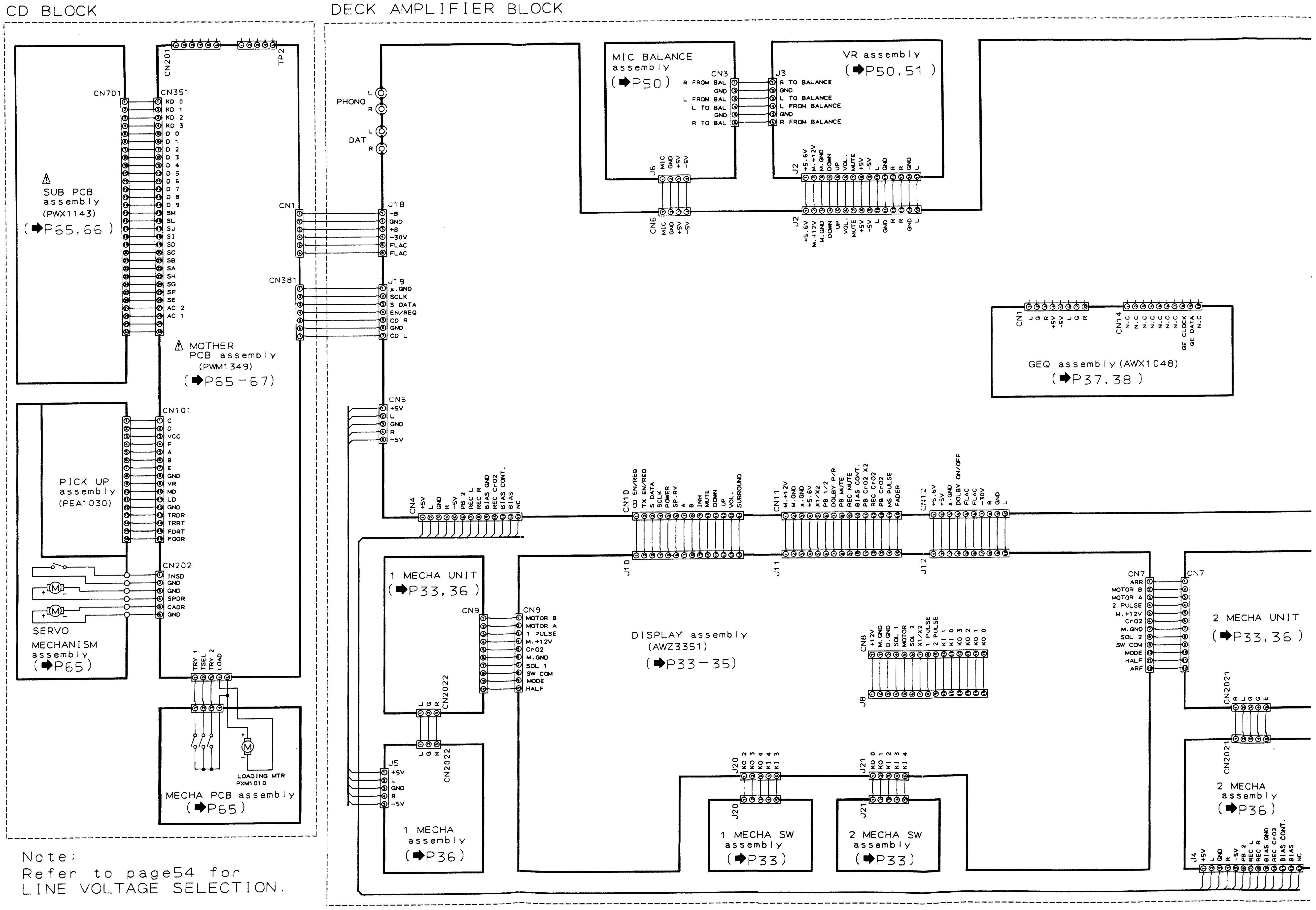



(106)
(101)
(102)
(103)
(104)
(105)
(112)

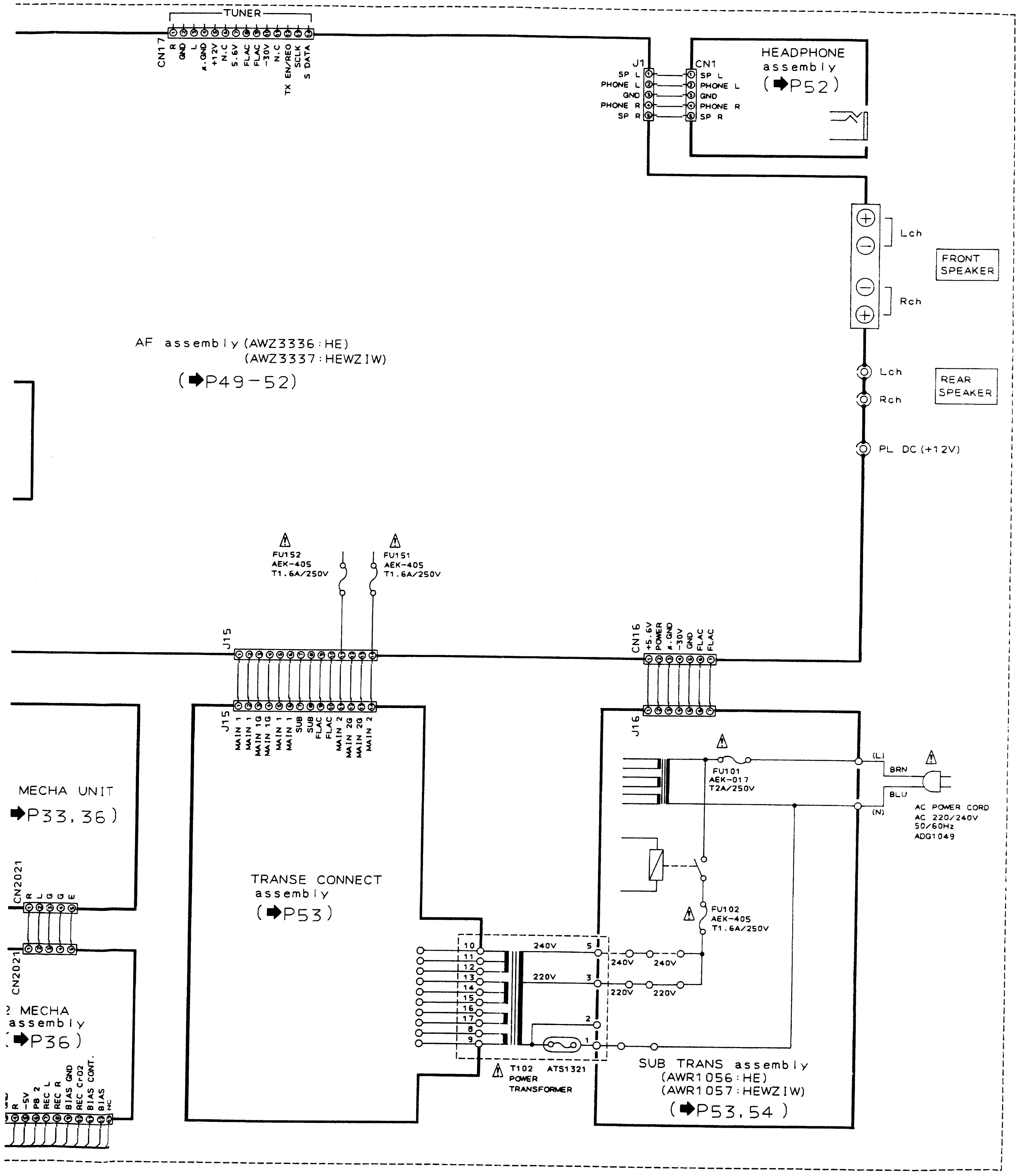


3. SCHEMATIC DIAGRAM AND P.C.BOARDS CONNECTION DIAGRAM

3.1 OVER ALL SCHEMATIC DIAGRAM


1
2
3
4
5
6
A
B
C
D
CD BLOCK
DECK AMPLIFIER BLOCK
SUB PCB assembly (PWX1143) (➡P65,66)
CN701
CN351
KD 0
KD 1
KD 2
KD 3
D 0
D 1
D 2
D 3
D 4
D 5
D 6
D 7
D 8
D 9
SM
SL
SJ
SI
SD
SC
SB
SA
SH
SG
SF
SE
AC 2
AC 1
CN201
TP2
MOTHER PCB assembly (PWM1349) (➡P65-67)
CN1
CN381
CN101
C
D
VCC
F
A
B
E
GND
VR
MD
LD
GND
TRDR
TRRT
FDRT
FDDR
PICK UP assembly (PEA1030)
CN202
INSD
GND
GND
SPDR
CADR
GND
SERVO MECHANISM assembly (➡P65)
TRY 1
TSEL
TRY 2
LOAD
LOADING MTR PXM1010
MECHA PCB assembly (➡P65)
PHONO
DAT
L
R
J18
-B
GND
+B
-30V
FLAC
FLAC
J19
A.GND
SCLK
S DATA
EN/REQ
CD R
GND
CD L
CN5
+5V
L
GND
R
-5V
MIC BALANCE assembly (➡P50)
CN3
R FROM BAL
GND
L FROM BAL
L TO BAL
GND
R TO BAL
J6
CN6
MIC
GND
+5V
-5V
VR assembly (➡P50,51)
J3
R TO BALANCE
GND
L TO BALANCE
L FROM BALANCE
GND
R FROM BALANCE
J2
+5.6V
M.+12V
M.GND
DOWN
UP
VOL.
MUTE
+5V
-5V
L
GND
R
R
GND
L
GEQ assembly (AWX1048) (➡P37,38)
CN1
L
G
R
+5V
-5V
L
G
R
CN14
N.C
N.C
N.C
N.C
N.C
N.C
N.C
GE CLOCK
GE DATA
N.C
CN4
+5V
L
GND
R
-5V
PB 2
REC L
REC R
BIAS GND
REC CrO2
BIAS CONT.
BIAS
NC
CN10
J10
CD EN/REQ
TX EN/REQ
S DATA
SCLK
POWER
SP.RY
A
B
INH
MUTE
DOWN
UP
VOL.
SURROUND
CN11
J11
M.+12V
M.GND
A.GND
+5.6V
X1/X2
PB 1/2
DOLBY P/R
PB MUTE
REC MUTE
BIAS CONT.
PB CrO2 X2
REC CrO2
PB CrO2
MS PULSE
FADER
CN12
J12
+5.6V
+5V
A.GND
DOLBY ON/OFF
FLAC
FLAC
-30V
R
GND
L
1 MECHA UNIT (➡P33,36)
CN9
MOTOR B
MOTOR A
1 PULSE
M.+12V
CrO2
M.GND
SOL 1
SW COM
MODE
HALF
CN2022
L
G
R
J5
+5V
L
GND
R
-5V
1 MECHA assembly (➡P36)
DISPLAY assembly (AWZ3351) (➡P33-35)
CN8
J8
+12V
M.GND
D.GND
SOL 1
MOTOR
SOL 2
X1/X2
1 PULSE
2 PULSE
KI 1
KI 0
KO 3
KO 2
KO 1
KO 0
J20
KO 2
KO 3
KO 4
KI 4
KI 3
1 MECHA SW assembly (➡P33)
J21
KO 0
KO 1
KI 2
KI 3
KI 4
2 MECHA SW assembly (➡P33)
CN7
ARR
MOTOR B
MOTOR A
2 PULSE
M.+12V
CrO2
M.GND
SOL 2
SW COM
MODE
HALF
ARF
2 MECHA UNIT (➡P33,36)
CN2021
R
L
G
G
E
2 MECHA assembly (➡P36)
J4
+5V
L
GND
R
-5V
PB 2
REC L
REC R
BIAS GND
REC CrO2
BIAS CONT.
BIAS
NC

Note:
Refer to page54 for
LINE VOLTAGE SELECTION.


TUNER
CN17
R
GND
L
A.GND
+12V
N.C
5.6V
FLAC
FLAC
-30V
N.C
TX EN/REO
SCLK
S DATA
J1
SP L
PHONE L
GND
PHONE R
SP R
CN1
SP L
PHONE L
GND
PHONE R
SP R
HEADPHONE assembly
(➡P52)
Lch
Rch
FRONT SPEAKER
Lch
Rch
REAR SPEAKER
PL DC (+12V)
AF assembly (AWZ3336 : HE)
(AWZ3337 : HEWZIW)
(➡P49−52)
FU152
AEK-405
T1.6A/250V
FU151
AEK-405
T1.6A/250V
J15
J15
MAIN 1
MAIN 1
MAIN 1G
MAIN 1G
MAIN 1
MAIN 1
SUB
SUB
FLAC
FLAC
MAIN 2
MAIN 2G
MAIN 2G
MAIN 2
CN16
+5.6V
POWER
A.GND
-30V
GND
FLAC
FLAC
J16
FU101
AEK-017
T2A/250V
(L)
BRN
BLU
(N)
AC POWER CORD
AC 220/240V
50/60Hz
ADG1049
MECHA UNIT
➡P33, 36)
CN2021
R
L
G
G
E
CN2021
2 MECHA
assembly
(➡P36)
R
-5V
PB 2
REC L
REC R
BIAS GND
REC CrO2
BIAS CONT.
BIAS
NC
TRANSE CONNECT
assembly
(➡P53)
FU102
AEK-405
T1.6A/250V
240V
220V
240V
240V
220V
220V
10
11
12
13
14
15
16
17
8
9
5
3
2
1
T102 ATS1321
POWER
TRANSFORMER
SUB TRANS assembly
(AWR1056 : HE)
(AWR1057 : HEWZIW)
(➡P53, 54)

1. RESISTORS:
   Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ▭ : Signal voltage at (45 W + 45 W 8Ω)output (1kHz)
   ▭ : DC voltage (V) at no input signal
   Value in ( ) is DC voltage at rated power.
   ⇦ mA : DC current at no input signal

4. OTHERS:
   ➡ : Signal route.
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ⁎ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

DISPLAY assembly

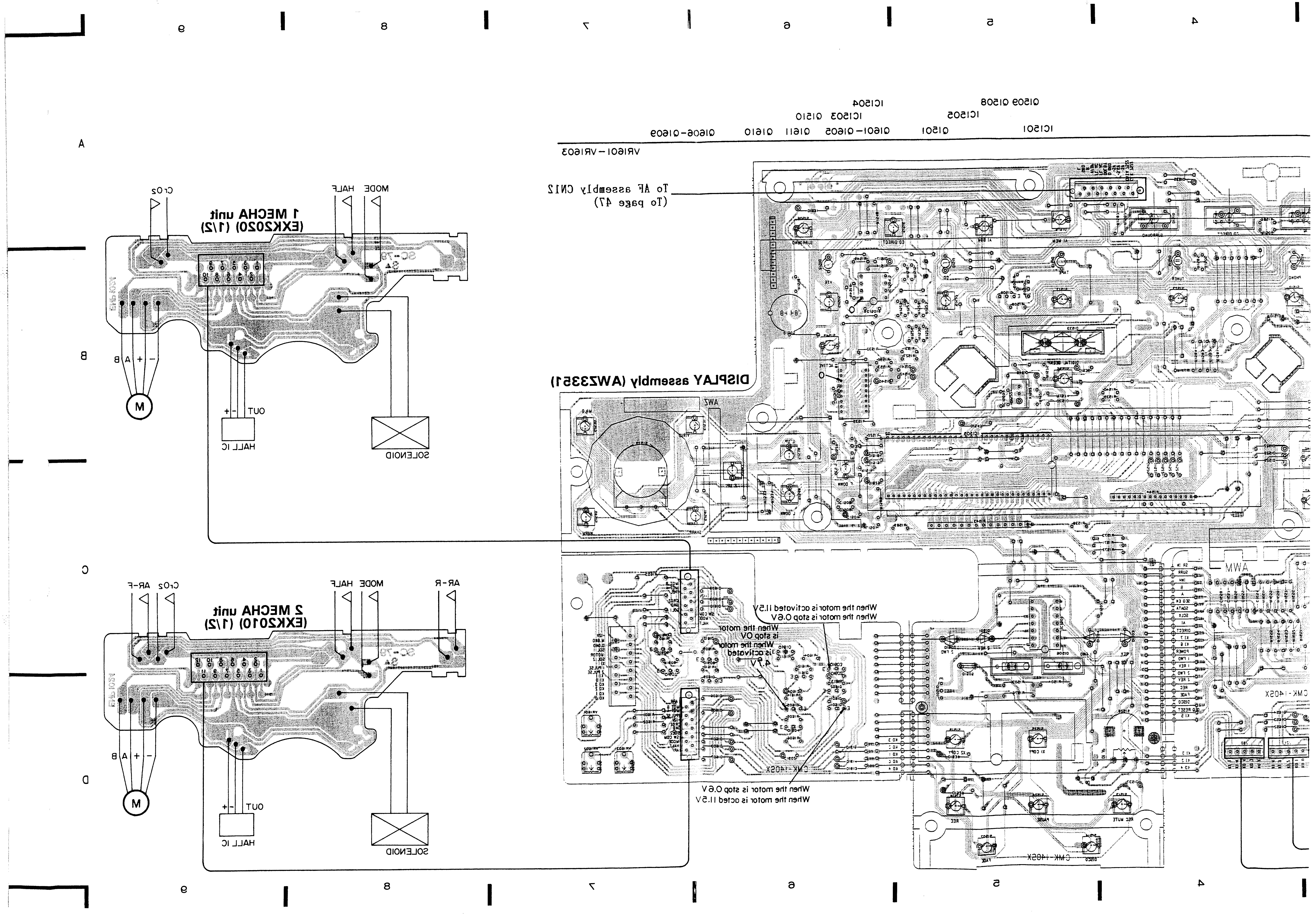
S1504	POWER
S1505	VIDEO
S1506	CD DIRECT
S1507	FADE/FINE
S1510	AI MEMO
S1511	AI BGM
S1512	PHONO
S1513	2 REC MUTE
S1514	DISCO
S1516	SURR
S1517	TAPE
S1518	2 REC
S1519	X2 COPY
S1522	CD
S1523	TX
S1524	2 PAUSE
S1525	X1 COPY
S1528	DOLBY NR ON/OFF
S1529	COM-A-B
S1530	MILD
S1531	VIVID
S1532	FLAY
S1533	/D
S1534	/B
S1535	MEMOLY
S1537	EQ ON/OFF
S1538	LEVEL UP
S1539	F DOWN
S1540	WARM
S1541	SHARP
S1542	/E
S1543	/C
S1544	/A
S1546	PGM/PRESET
S1547	F UP
S1548	LEVEL DOWN
S1549	ACTIVE LOUNDNESS

1 MECHA SW assembly

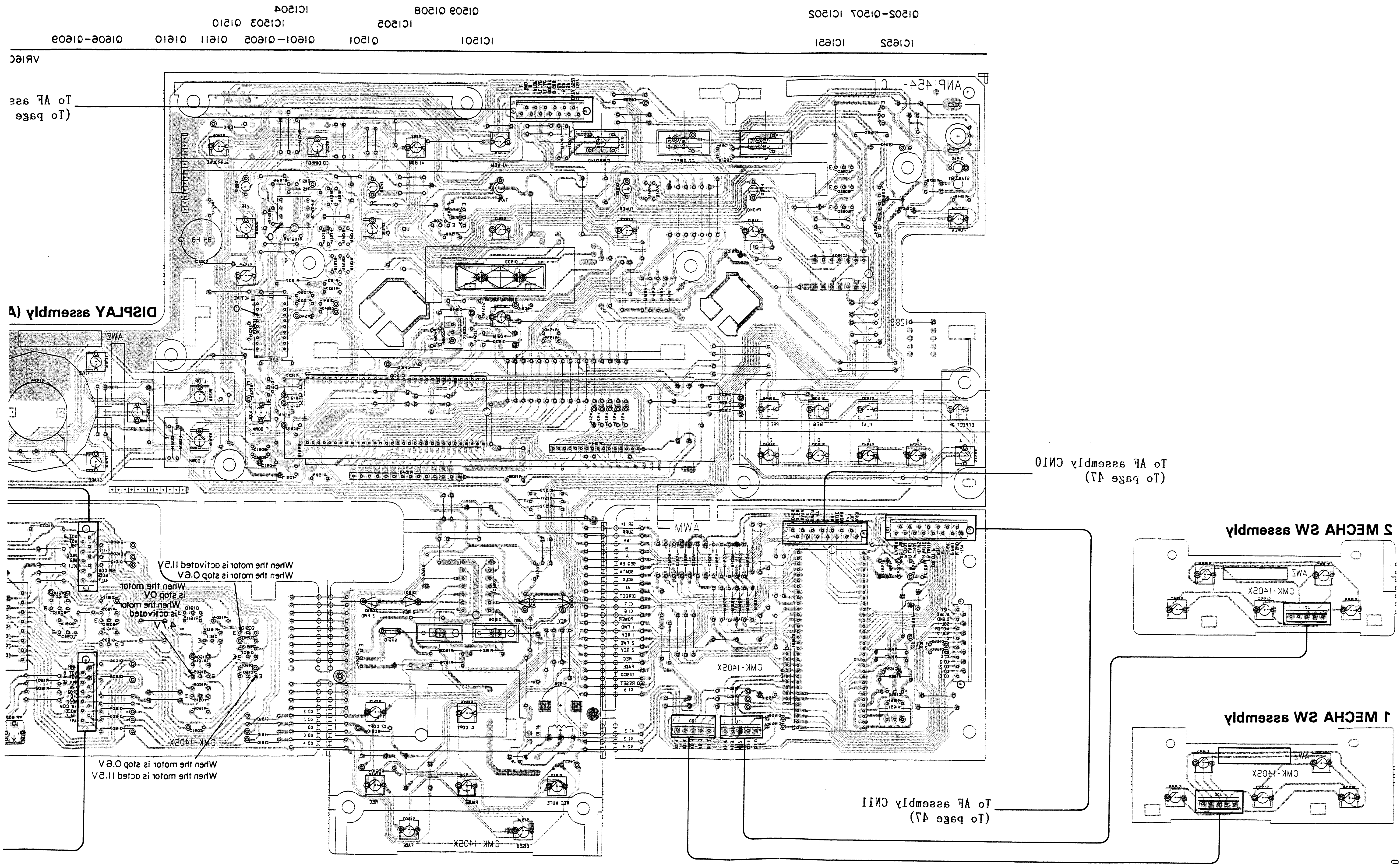
S1551	1 REV
S1552	1 PLAY
S1553	1 STOP
S1554	1 REW
S1555	1 FF

2 MECHA SW assembly

S1556	2 STOP
S1557	2 REV
S1558	2 PLAY
S1559	2 REW
S1560	2 FF


9
8
7
6
5
4
A
B
C
D
IC1504
IC1503 Q1510
Q1601–Q1605 Q1611 Q1610
Q1606–Q1609
VR1601–VR1603
Q1509 Q1508
IC1505
Q1501
IC1501
To AF assembly CN12
(To page 47)
1 MECHA unit
(EXK2020) (1/2)
CrO2
HALF
MODE
B
A
+
-
M
OUT
HALL IC
SOLENOID
DISPLAY assembly (AWZ3351)
AWZ
AWW
2 MECHA unit
(EXK2010) (1/2)
AR-F
CrO2
HALF
MODE
AR-R
B
A
+
-
M
OUT
HALL IC
SOLENOID
When the motor is activated 11.5V
When the motor is stop 0.6V
When the motor is stop 0V
When the motor is activated 4.7V
When the motor is stop 0.6V
When the motor is acted 11.5V
CMK-140SX
CMK-140SX
CMK-140SX

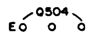
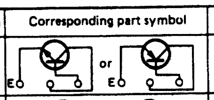
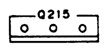
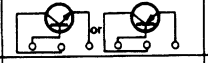
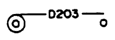
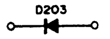
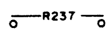
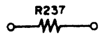
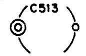
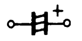
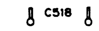
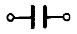
This P.C.B. connection diagram is viewed from the foil side.


Q1502–Q1507 IC1502
IC1652
IC1651
Q1509 Q1508
IC1505
IC1501
Q1501
IC1504
IC1503 Q1510
Q1601–Q1605
Q1611
Q1610
Q1606–Q1609
VR16C
ANP1454-C
To AF ass
(To page
DISPLAY assembly (A
AWZ
AWM
To AF assembly CN10
(To page 47)
2 MECHA SW assembly
1 MECHA SW assembly
CMK-140SX
To AF assembly CN11
(To page 47)
When the motor is activated 11.5V
When the motor is stop 0.6V
When the motor is stop 0V
When the motor is activated 4.7V
When the motor is stop 0.6V
When the motor is octed 11.5V
STAND BY
TUNER
PHONO
CD DIRECT
SURROUND
TAPE
VTR
EFFECT ON
FLAT
MEM
PRE
REC
PAUSE
REC MUTE
FADE
DISCO
X1 COPY
X2 COPY
A
B
C
D
1
2
3
4
5
6

3.2 DISPLAY (AWZ3351), 1 MECHA SW, 2 MECHA SW assembly, 1 MECHA UNIT (EXK2020) and 2 MECHA UNIT (EXK2010)

NOTE

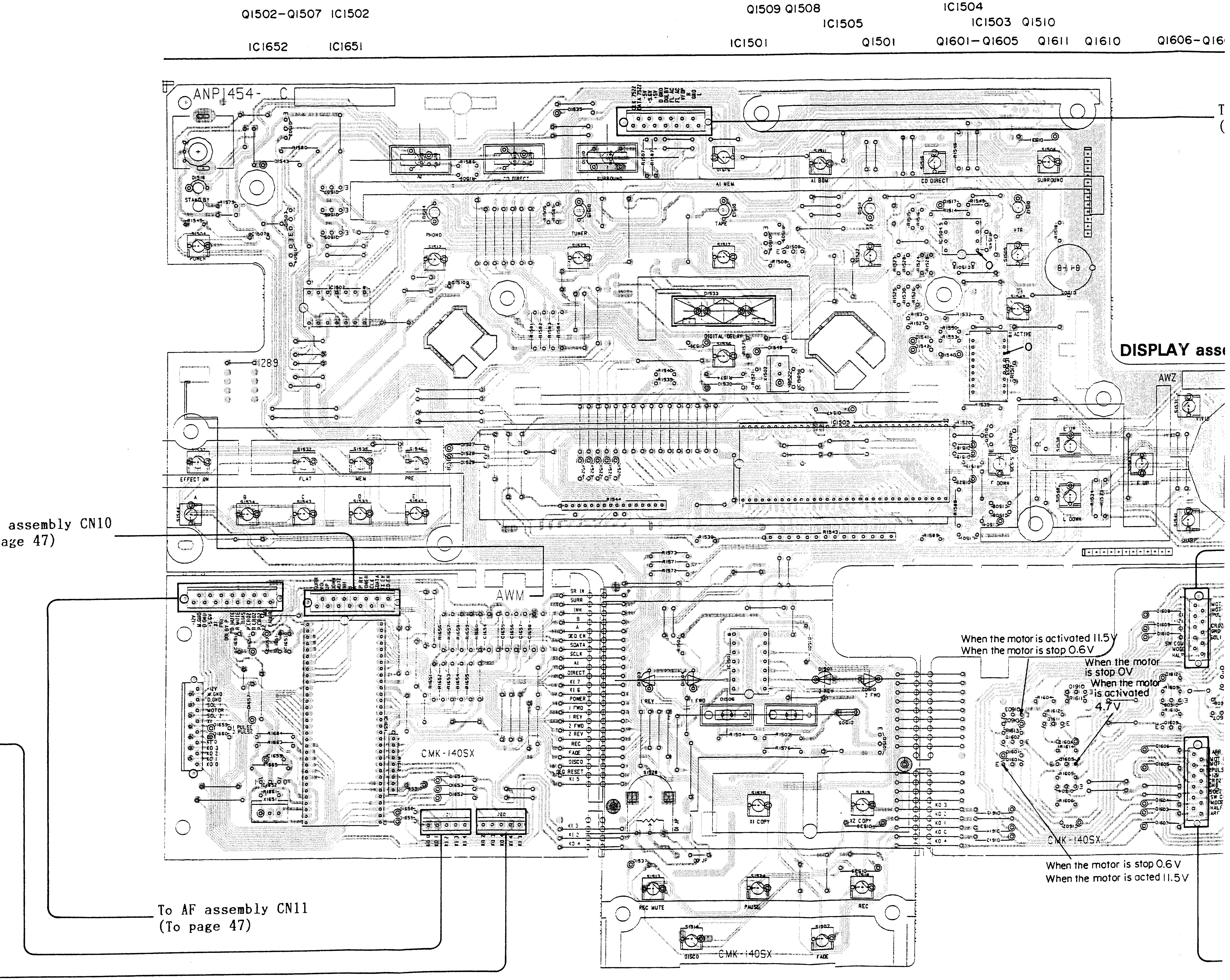
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
 Q504 E	 E or E	Transistor
 Q215	 or	Radiator type transistor
 D203	 D203	Diode
 R237	 R237	Resistor
 C513	 +	Capacitor (Polarity)
 C518		Capacitor (Non-polarity)

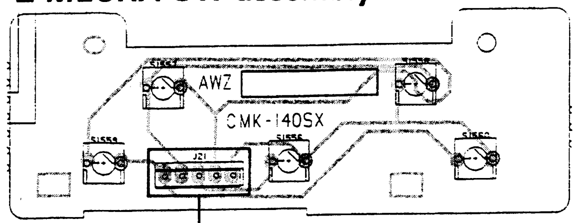
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

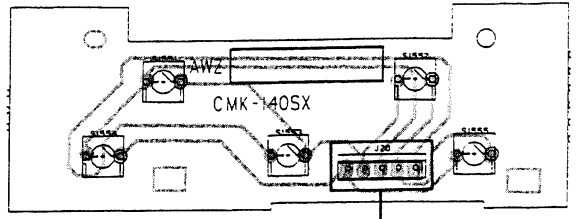
3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

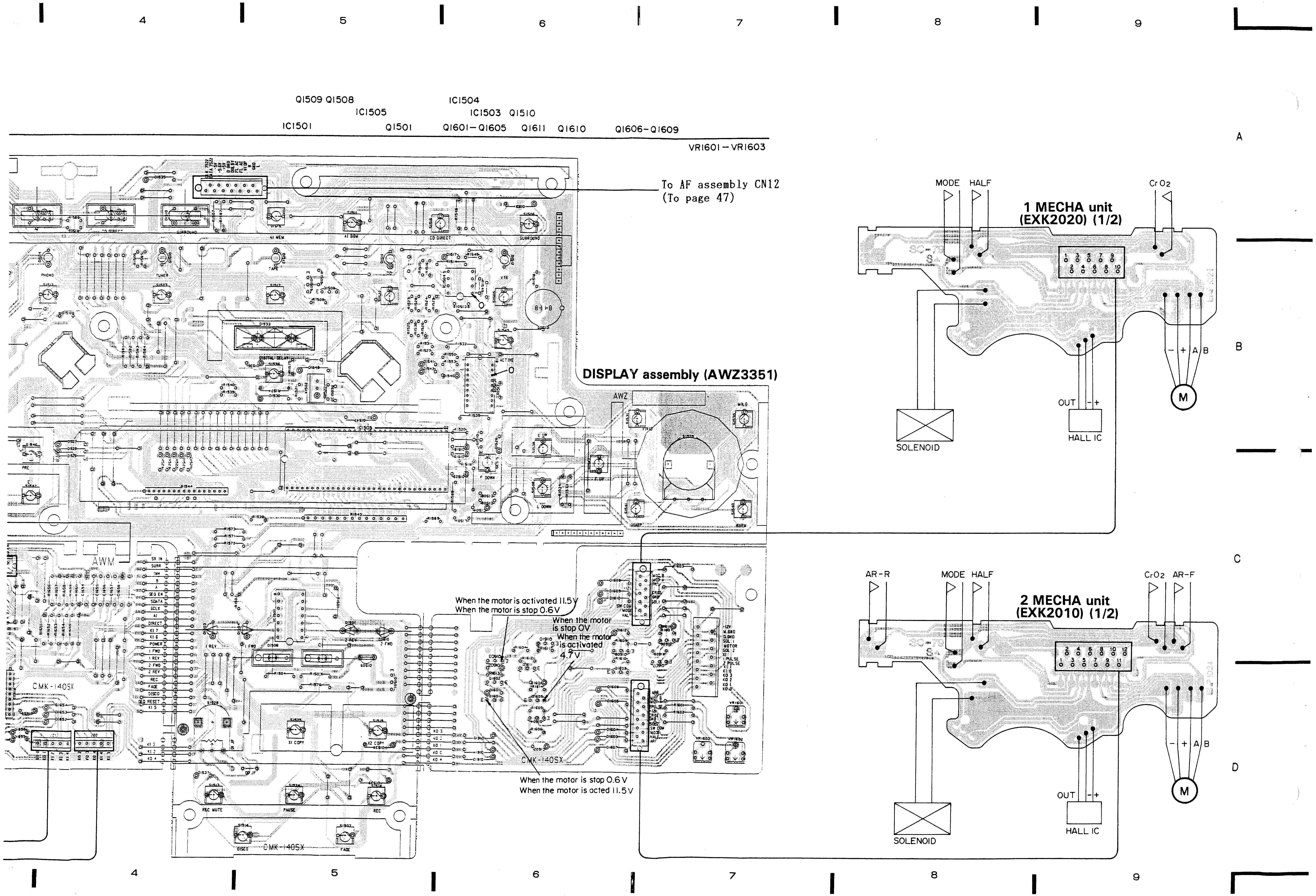

Q1502–Q1507 IC1502
IC1652
IC1651
Q1509 Q1508
IC1505
IC1501
Q1501
IC1504
IC1503 Q1510
Q1601–Q1605
Q1611
Q1610
Q1606–Q16
ANP1454- C
STANDBY
POWER
PHONO
TUNER
TAPE
CD DIRECT
SURROUND
AI MEM
AI BGM
VTR
DIGITAL DELAY
ACTIVE
DISPLAY ass
AWZ
EFFECT ON
FLAT
MEM
PRE
A
B
C
D
E
F DOWN
F UP
L DOWN
SHARP
To AF assembly CN10
(To page 47)
AWM
CMK-140SX
SR IN
SURR
INH
B
A
SEQ EN
SDATA
SCLK
AI
DIRECT
KI 7
KI 6
POWER
1 FWD
1 REV
2 FWD
2 REV
REC
FADE
DISCO
REG RESET
KI 5
1 REV
1 FWD
2 REV
2 FWD
X1 COPY
X2 COPY
KO 3
KO 2
KO 1
KO 0
KO 4
When the motor is activated 11.5V
When the motor is stop 0.6V
When the motor is stop 0V
When the motor is activated 4.7V
When the motor is stop 0.6 V
When the motor is acted 11.5V
MOT
MOT
PUL
+12V
CR02
GND
SOL1
SW COM
MODE
HALF
ARR
2PULS
SOL2
ARF
CMK-140SX
REC MUTE
PAUSE
REC
DISCO
FADE
CMK-140SX
To AF assembly CN11
(To page 47)

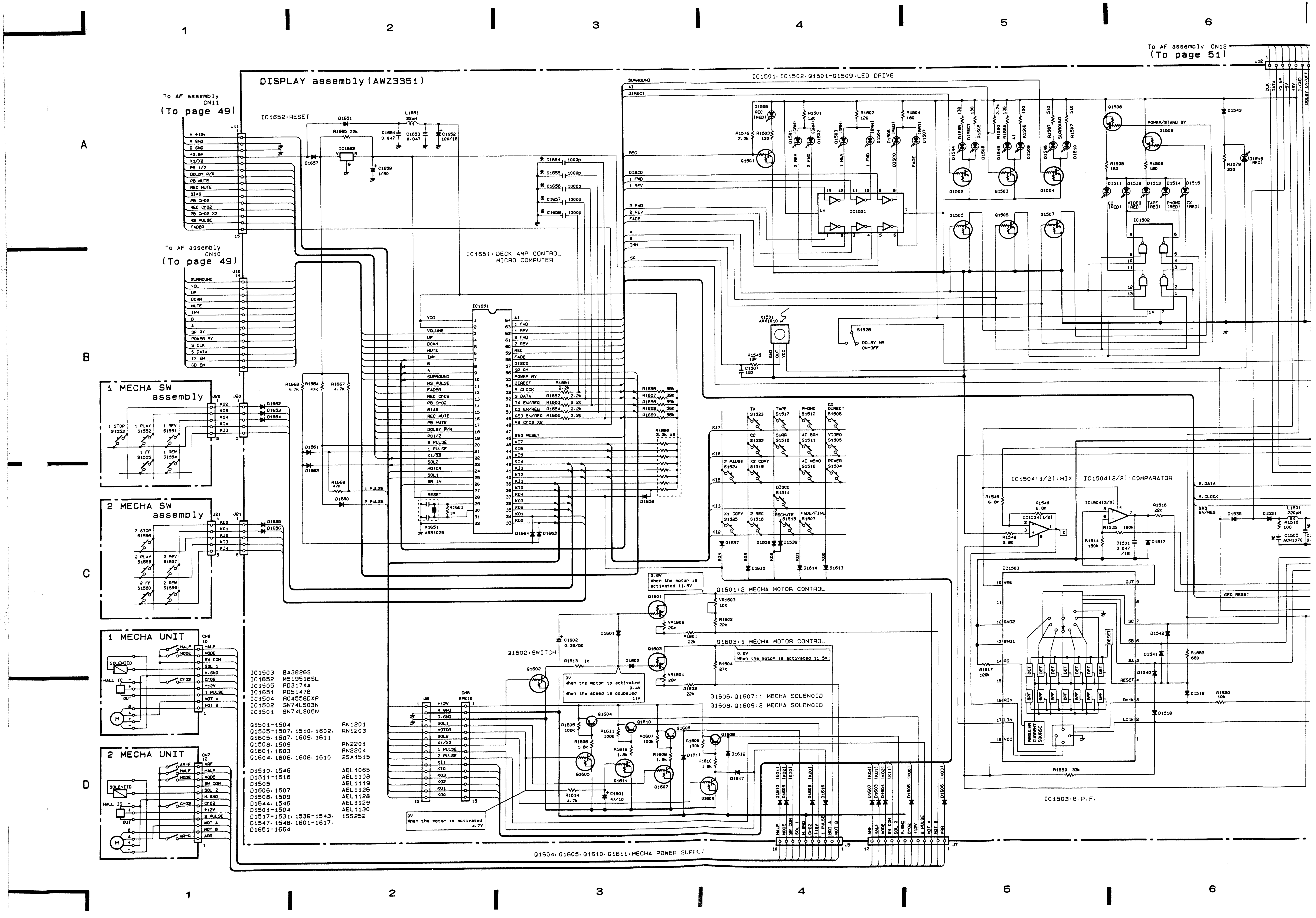
2 MECHA SW assembly


AWZ
CMK-140SX
J21

1 MECHA SW assembly

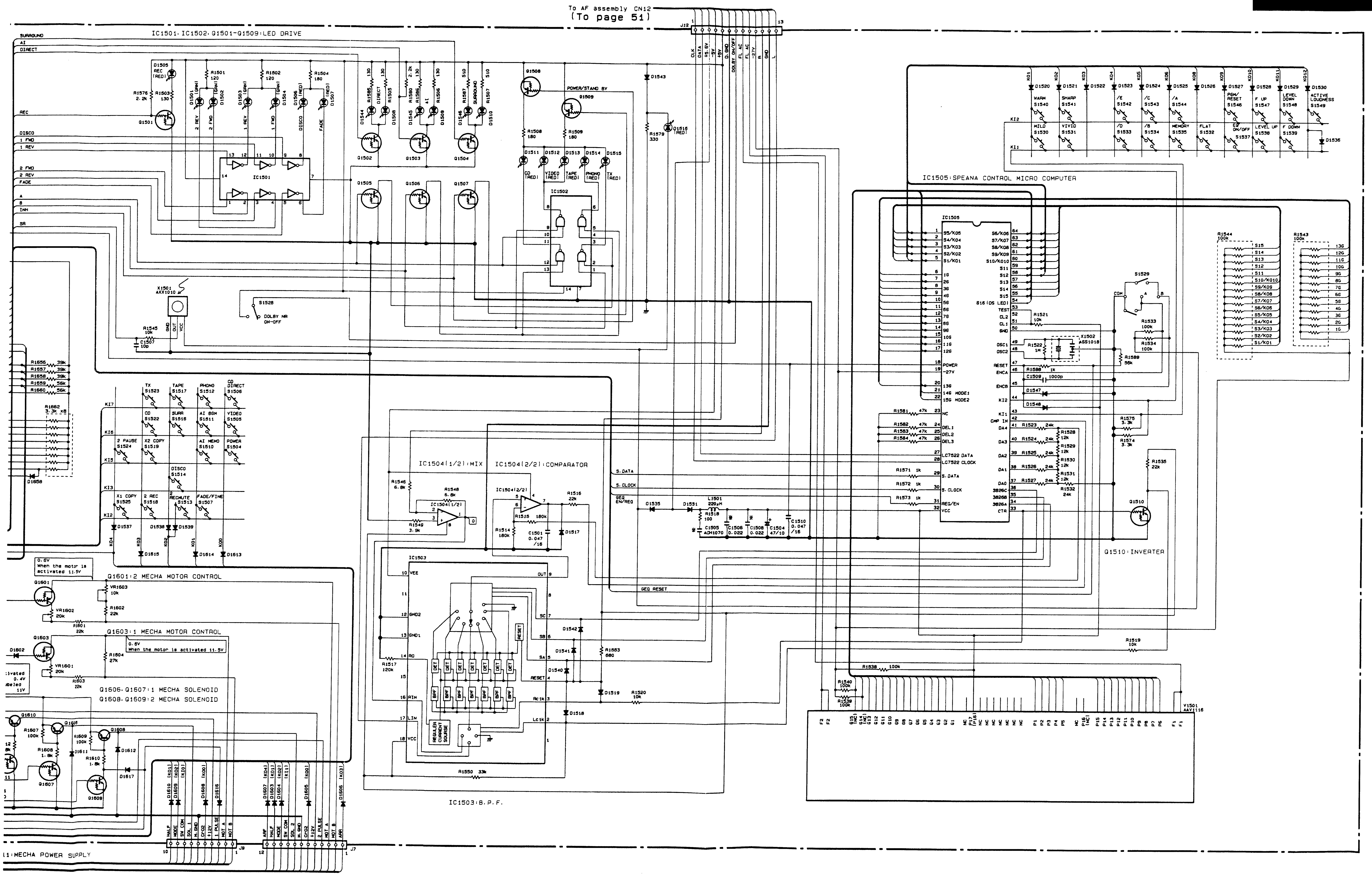

AWZ
CMK-140SX
J20


4
5
6
7
8
9
A
B
C
D
Q1509 Q1508
IC1505
IC1504
IC1503 Q1510
IC1501
Q1501
Q1601–Q1605
Q1611
Q1610
Q1606–Q1609
VR1601–VR1603
To AF assembly CN12
(To page 47)
DISPLAY assembly (AWZ3351)
AWZ
AWM
CMK-140SX
1 MECHA unit
(EXK2020) (1/2)
2 MECHA unit
(EXK2010) (1/2)
MODE
HALF
CrO2
AR-R
AR-F
SOLENOID
HALL IC
OUT
-
+
A
B
M
When the motor is activated 11.5V
When the motor is stop 0.6V
When the motor is stop 0V
When the motor is activated 4.7V
When the motor is stop 0.6V
When the motor is acted 11.5V
PHONO
TUNER
TAPE
CD DIRECT
SURROUND
AI MEM
AI BGM
VTR
DIGITAL DELAY
ACTIVE
PRE
MILD
WARM
SHARP
F.UP
L.DOWN
REC MUTE
PAUSE
REC
DISCO
FADE
X1 COPY
X2 COPY
1 REV
1 FWD
2 REV
2 FWD

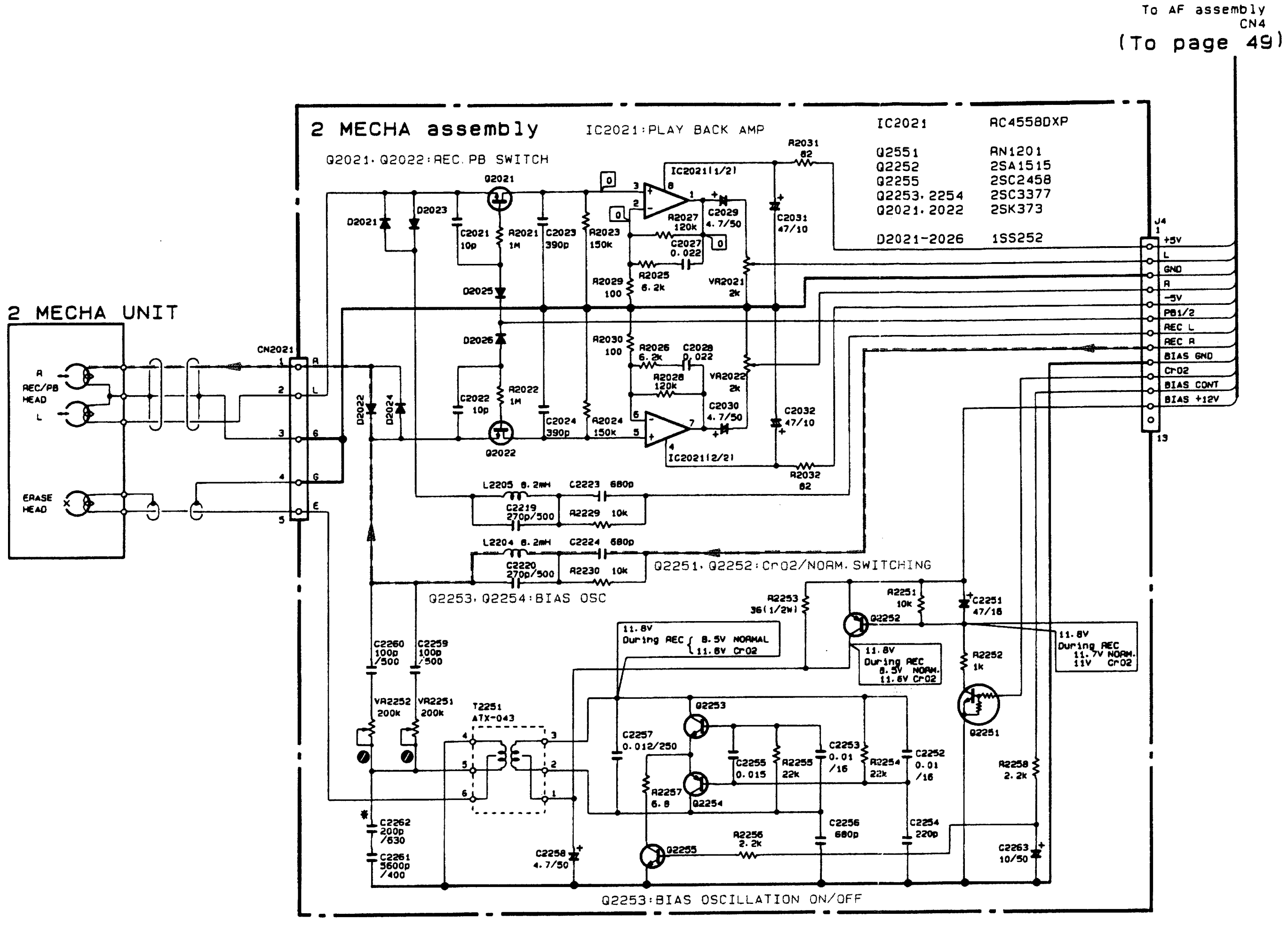

DISPLAY assembly (AWZ3351)
To AF assembly CN11 (To page 49)
To AF assembly CN10 (To page 49)
To AF assembly CN12 (To page 51)
IC1652: RESET
IC1651: DECK AMP CONTROL MICRO COMPUTER
IC1501, IC1502, Q1501–Q1509: LED DRIVE
POWER/STAND BY
IC1504(1/2): MIX
IC1504(2/2): COMPARATOR
IC1503: B.P.F.
1 MECHA SW assembly
2 MECHA SW assembly
1 MECHA UNIT
2 MECHA UNIT
SOLENOID
HALL IC
Q1601: 2 MECHA MOTOR CONTROL
Q1603: 1 MECHA MOTOR CONTROL
Q1602: SWITCH
Q1606, Q1607: 1 MECHA SOLENOID
Q1608, Q1609: 2 MECHA SOLENOID
Q1604, Q1605, Q1610, Q1611: MECHA POWER SUPPLY
0.6V When the motor is activated 11.5V
0.6V When the motor is activated 11.5V
0V When the motor is activated 0.4V When the speed is doubled 11V
0V When the motor is activated 4.7V
X1501 AXX1010
S1528 DOLBY NR ON-OFF
X1651 ASS1025
1
2
3
4
5
6
A
B
C
D

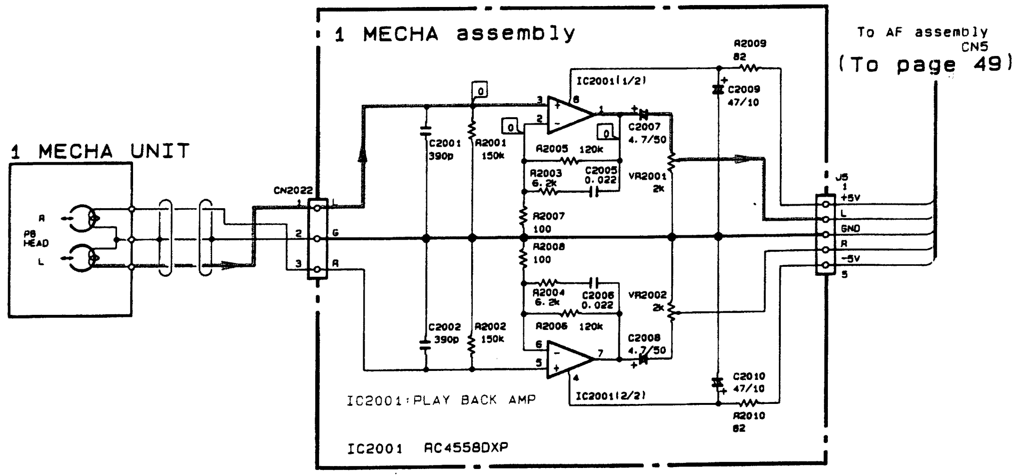
IC1503 BA3826S
IC1652 M51951BSL
IC1505 PD3174A
IC1651 PD5147B
IC1504 RC4558DXP
IC1502 SN74LS03N
IC1501 SN74LS05N

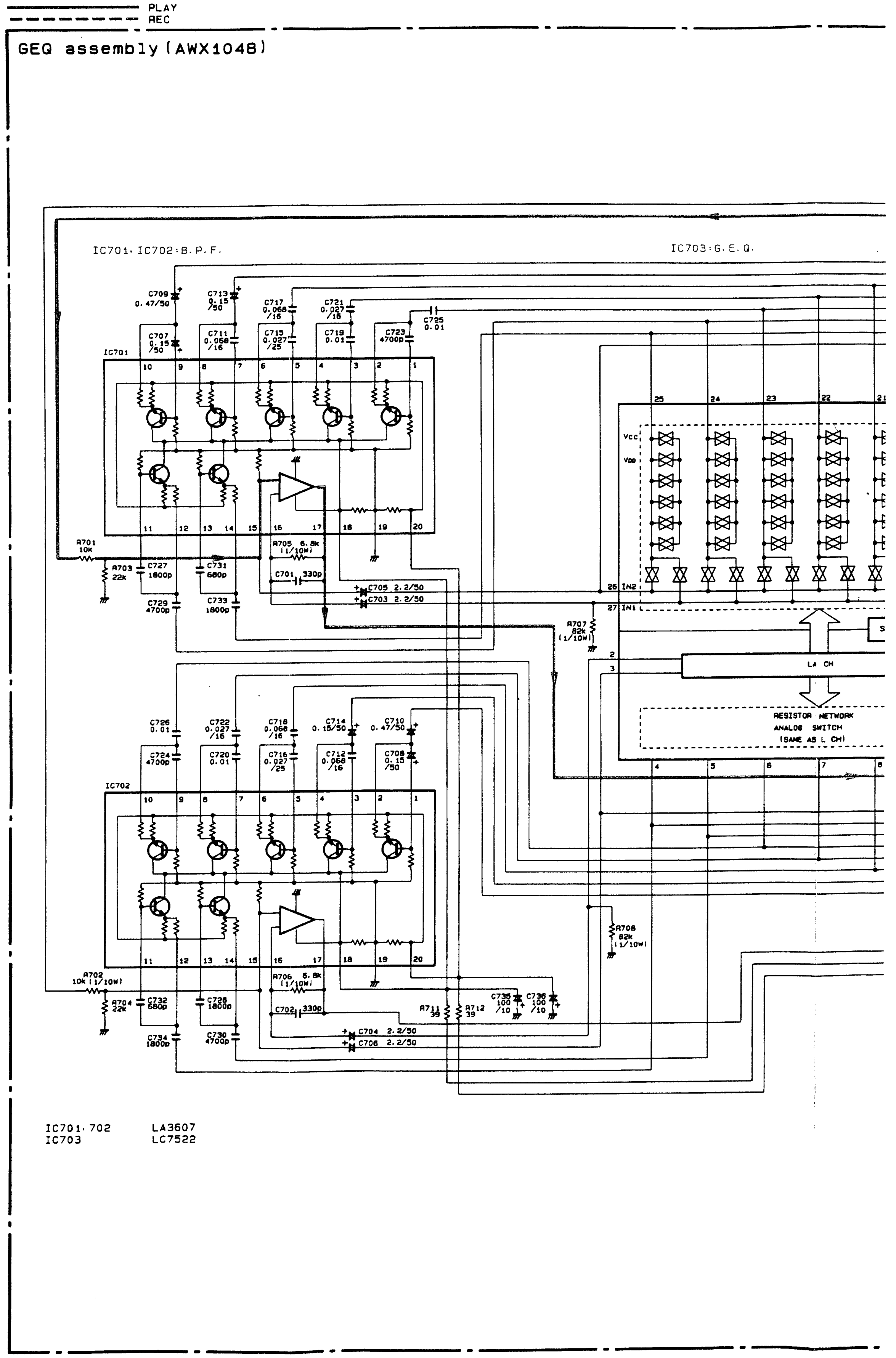
Q1501-1504	RN1201
Q1505-1507, 1510, 1602, Q1605, 1607, 1609, 1611	RN1203
Q1508, 1509	RN2201
Q1601, 1603	RN2204
Q1604, 1606, 1608, 1610	2SA1515
D1510, 1546	AEL1065
D1511-1516	AEL1108
D1505	AEL1119
D1506, 1507	AEL1126
D1508, 1509	AEL1128
D1544, 1545	AEL1129
D1501-1504	AEL1130
D1517-1531, 1536-1543, D1547, 1548, 1601-1617, D1651-1664	1SS252

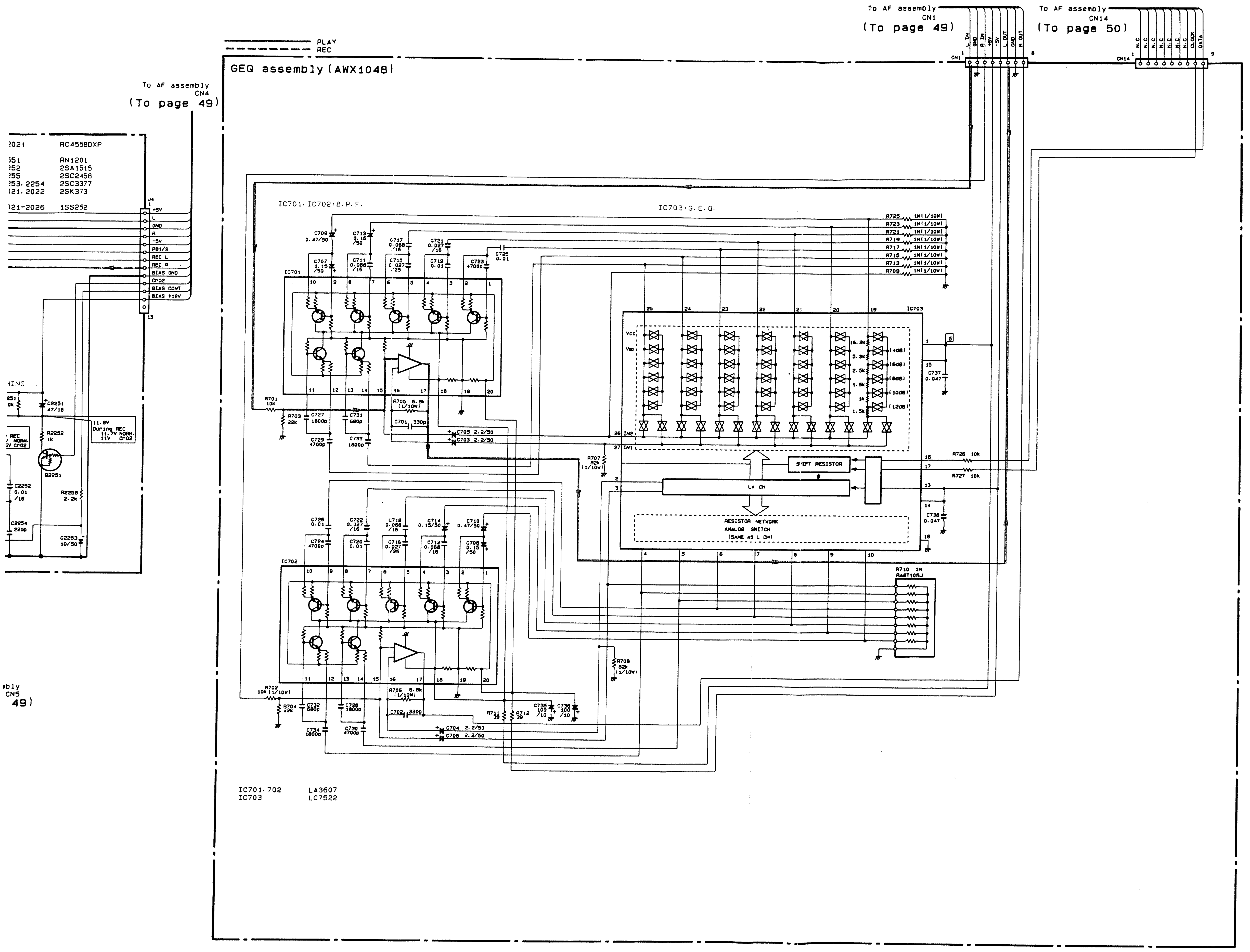

To AF assembly CN12
(To page 51)
J12
CLK
DATA
+5.6V
-5V
+5V
D.GND
DOLBY ON/OFF
FL AC
FL AC
-27V
R
GND
L
IC1501·IC1502·Q1501-Q1509:LED DRIVE
SURROUND
AI
DIRECT
REC
DISCO
1 FWD
1 REV
2 FWD
2 REV
FADE
A
B
INH
SR
IC1501
IC1502
Q1501
Q1502
Q1503
Q1504
Q1505
Q1506
Q1507
Q1508
Q1509
POWER/STAND BY
D1511
D1512
D1513
D1514
D1515
CD (RED)
VIDEO (RED)
TAPE (RED)
PHONO (RED)
TX (RED)
D1516 (RED)
D1543
R1579 330
X1501 AXX1010
S1528
DOLBY NR ON-OFF
R1545 10k
C1507 10p
IC1505:SPEANA CONTROL MICRO COMPUTER
IC1505
S1540 WARM
S1541 SHARP
S1542 /E
S1543 /C
S1544 /A
S1546 PGM/RESET
S1547 F UP
S1548 LEVEL DOWN
S1549 ACTIVE LOUDNESS
S1530 MILD
S1531 VIVID
S1533 /D
S1534 /B
S1535 MEMORY
S1532 FLAT
S1537 EQ ON/OFF
S1538 LEVEL UP
S1539 F DOWN
D1536
KI1
KI2
KO1
KO2
KO3
KO4
KO5
KO6
KO8
KO9
KO10
KO11
KO12
S1529
COM
R1544 100k
R1543 100k
X1502 ASS1018
R1522 1M
R1533 100k
R1534 100k
R1589 56k
R1588 1k
C1509 1000p
D1547
D1548
R1575 3.3k
R1574 3.3k
R1535 22k
Q1510
Q1510:INVERTER
S.DATA
S.CLOCK
GEQ EN/REQ
GEQ RESET
L1501 220μH
D1535
D1531
R1518 100
C1505 ACH1070
C1506 0.022
C1508 0.022
C1504 47/10
C1510 0.047 /16
IC1504(1/2):MIX
IC1504(2/2):COMPARATOR
R1546 6.8k
R1548 6.8k
R1549 3.9k
R1516 22k
R1515 180k
R1514 180k
C1501 0.047 /16
D1517
IC1503
IC1503:B.P.F.
VEE
GND2
GND1
RO
RIN
LIN
VCC
OUT
SC
SB
SA
RESET
Rclk
Lclk
DET
BPF
REGULER CURRENT SOURSE
R1517 120k
R1550 33k
D1542
D1541
D1540
R1553 680
D1519
R1520 10k
D1518
R1519 10k
R1538 100k
R1540 100k
R1539 100k
V1501 AAV1116
TX S1523
TAPE S1517
PHONO S1512
CD DIRECT S1506
CD S1522
SURR S1516
AI BGM S1511
VIDEO S1505
2 PAUSE S1524
X2 COPY S1519
AI MEMO S1510
POWER S1504
DISCO S1514
X1 COPY S1525
2 REC S1518
RECMUTE S1513
FADE/FINE S1507
KI7
KI6
KI5
KI3
KI2
D1537
D1538
D1539
D1615
D1614
D1613
R1656 39k
R1657 39k
R1658 39k
R1659 56k
R1660 56k
R1662 3.3k x8
D1658
0.6V When the motor is activated 11.5V
Q1601:2 MECHA MOTOR CONTROL
Q1601
VR1603 10k
VR1602 20k
R1602 22k
R1601 22k
Q1603:1 MECHA MOTOR CONTROL
Q1603
0.6V When the motor is activated 11.5V
R1604 27k
VR1601 20k
R1603 22k
D1602
Q1606·Q1607:1 MECHA SOLENOID
Q1608·Q1609:2 MECHA SOLENOID
Q1610
Q1606
Q1607
Q1608
Q1609
R1607 100k
R1608 1.8k
R1609 100k
R1610 1.8k
D1611
D1612
D1617
J8
J7
HALF
MODE
SW COM
SOL 1
M.GND
CrO2
+12V
1 PULSE
MOT A
MOT B
ARR
2 PULSE
(1):MECHA POWER SUPPLY
4
5
6
7
8
9
A
B
C
D

3.3 GEQ (AWX1048), 1 MECHA and 2 MECHA assembly


To AF assembly CN4
(To page 49)
2 MECHA assembly
IC2021:PLAY BACK AMP
Q2021, Q2022:REC.PB SWITCH
IC2021 RC4558DXP
Q2551 RN1201
Q2252 2SA1515
Q2255 2SC2458
Q2253, 2254 2SC3377
Q2021, 2022 2SK373
D2021-2026 1SS252
2 MECHA UNIT
REC/PB HEAD
ERASE HEAD
CN2021
J4
+5V
L
GND
R
-5V
PB1/2
REC L
REC R
BIAS GND
CrO2
BIAS CONT
BIAS +12V
IC2021(1/2)
IC2021(2/2)
Q2251, Q2252:CrO2/NORM. SWITCHING
Q2253, Q2254:BIAS OSC
Q2253:BIAS OSCILLATION ON/OFF
T2251 ATX-043
11.8V During REC { 8.5V NORMAL, 11.8V CrO2
11.8V During REC 8.5V NORM. 11.8V CrO2
11.8V During REC 11.7V NORM. 11V CrO2


1 MECHA assembly
To AF assembly CN5
(To page 49)
1 MECHA UNIT
PB HEAD
CN2022
J5
+5V
L
GND
R
-5V
IC2001(1/2)
IC2001(2/2)
IC2001:PLAY BACK AMP
IC2001 RC4558DXP


PLAY
REC
GEQ assembly (AWX1048)
IC701, IC702:B.P.F.
IC703:G.E.Q.
IC701
IC702
L ch
RESISTOR NETWORK
ANALOG SWITCH
(SAME AS L CH)
IC701, 702 LA3607
IC703 LC7522


To AF assembly
CN1
(To page 49)
To AF assembly
CN14
(To page 50)
L IN
GND
R IN
+5V
-5V
L OUT
GND
R OUT
N.C
CLOCK
DATA
CN1
CN14
PLAY
REC
GEQ assembly (AWX1048)
To AF assembly
CN4
(To page 49)
RC4558DXP
RN1201
2SA1515
2SC2458
2SC3377
2SK373
1SS252
J4
+5V
L
GND
R
-5V
PB1/2
REC L
REC R
BIAS GND
CrO2
BIAS CONT
BIAS +12V
C2251 47/16
R2252 1k
Q2251
11.8V During REC 11.7V NORM. 11V CrO2
C2252 0.01 /16
R2258 2.2k
C2254 220p
C2263 10/50
CN5
49)
IC701·IC702: B.P.F.
IC703: G.E.Q.
IC701
IC702
IC703
R701 10k
R703 22k
R702 10k (1/10W)
R704 22k
R705 5.6k (1/10W)
R706 5.6k (1/10W)
C701 330p
C702 330p
C705 2.2/50
C703 2.2/50
C704 2.2/50
C706 2.2/50
R707 82k (1/10W)
R708 82k (1/10W)
R711 39
R712 39
C735 100 /10
C736 100 /10
R725 1M(1/10W)
R723 1M(1/10W)
R721 1M(1/10W)
R719 1M(1/10W)
R717 1M(1/10W)
R715 1M(1/10W)
R713 1M(1/10W)
R709 1M(1/10W)
R710 1M RA8T105J
R726 10k
R727 10k
C737 0.047
C738 0.047
Vcc
VDD
16.2k
5.3k
2.5k
1.5k
1k
1.5k
(4dB)
(6dB)
(8dB)
(10dB)
(12dB)
IN2
IN1
SHIFT RESISTOR
L4 CH
RESISTOR NETWORK
ANALOG SWITCH
(SAME AS L CH)
IC701·702 LA3607
IC703 LC7522

A
B
C
D

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

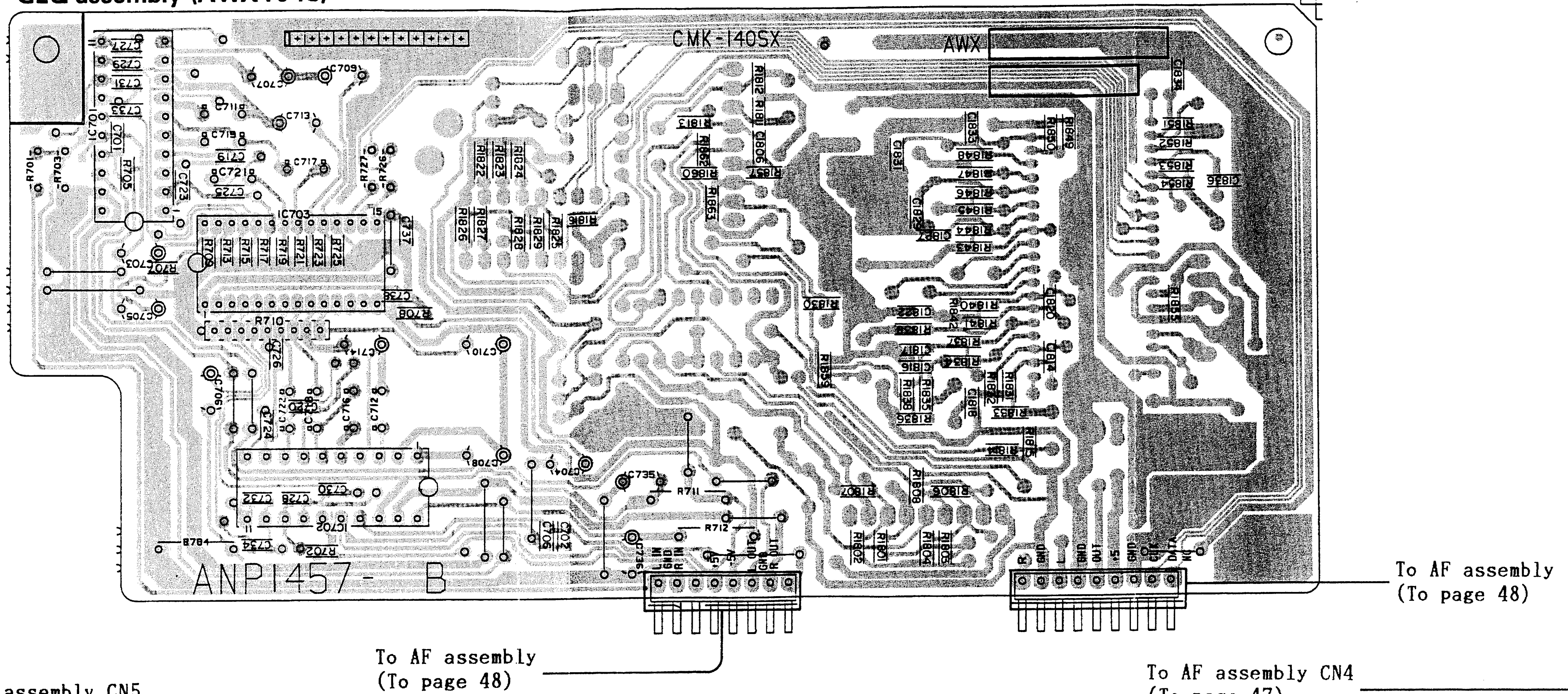
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

GEQ assembly (AWX1048)

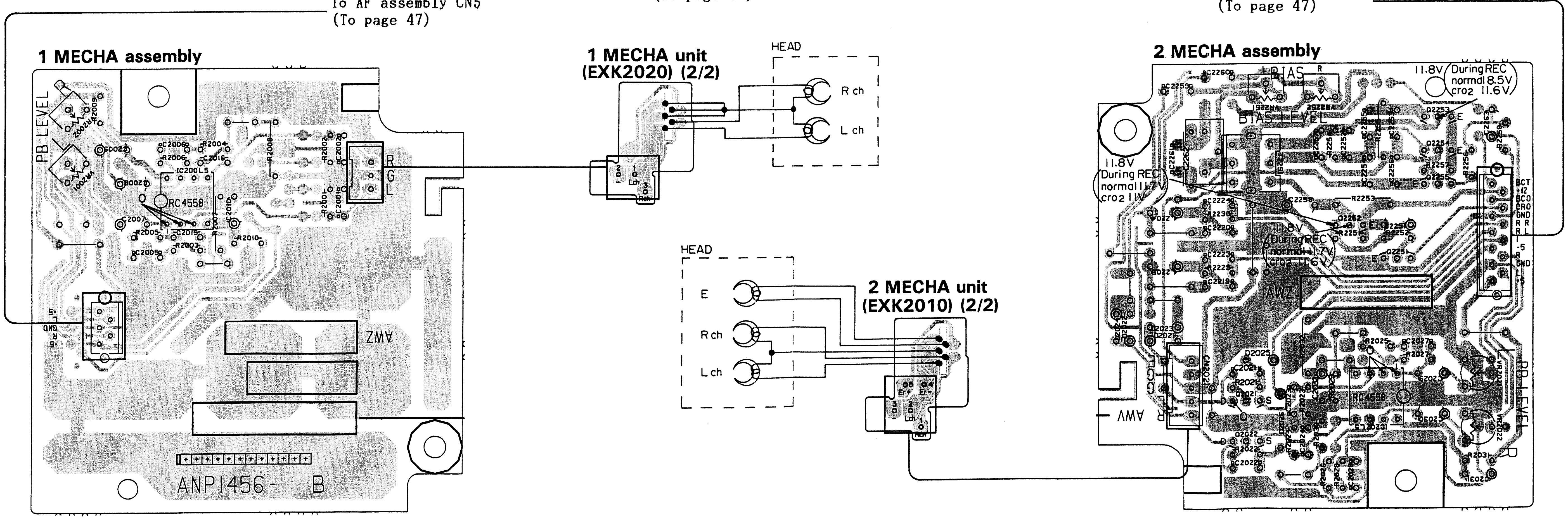

CMK-140SX
AWX
IC701
IC703
IC702
ANP1457- B
To AF assembly
(To page 48)
To AF assembly
(To page 48)

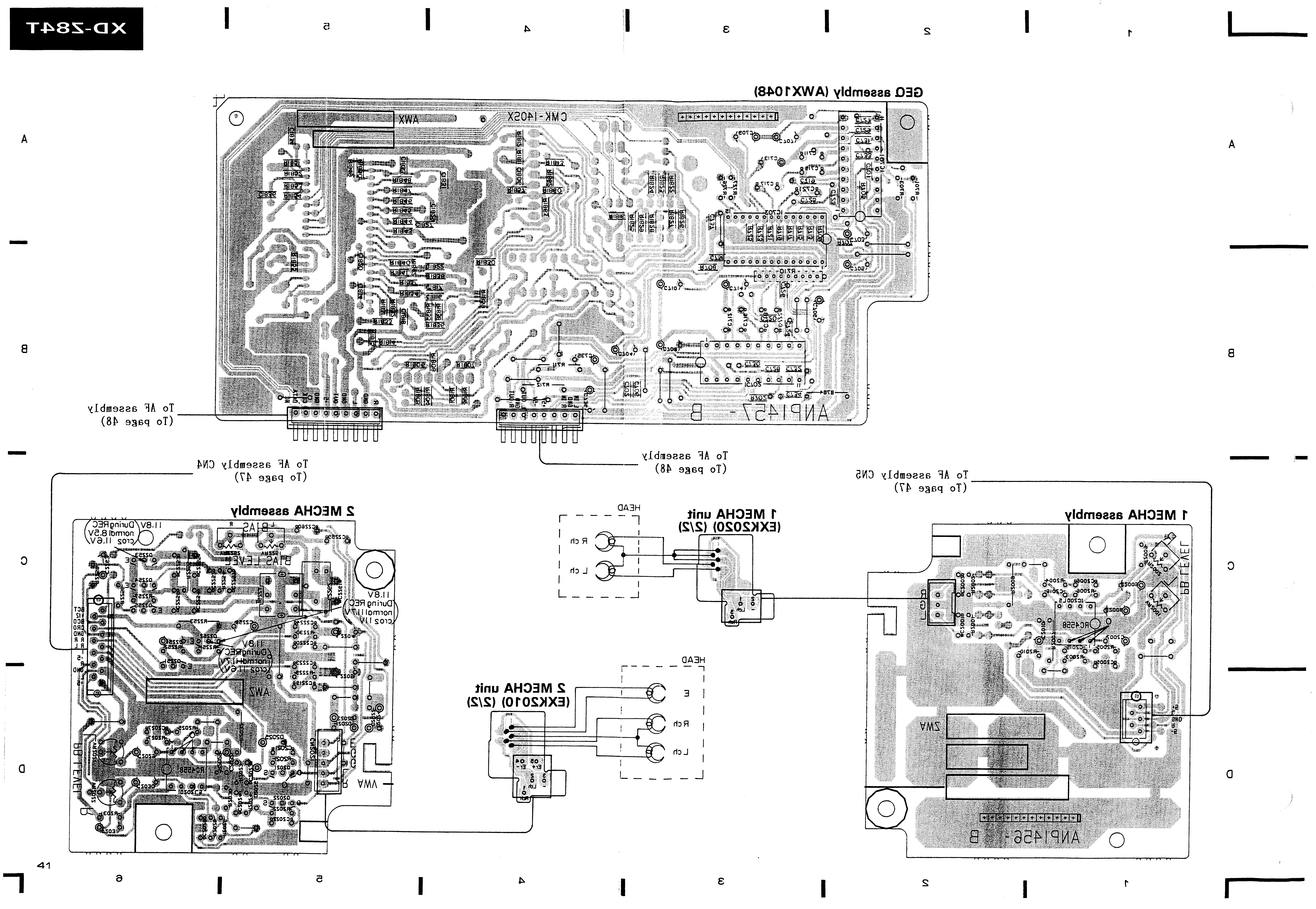
1 MECHA assembly

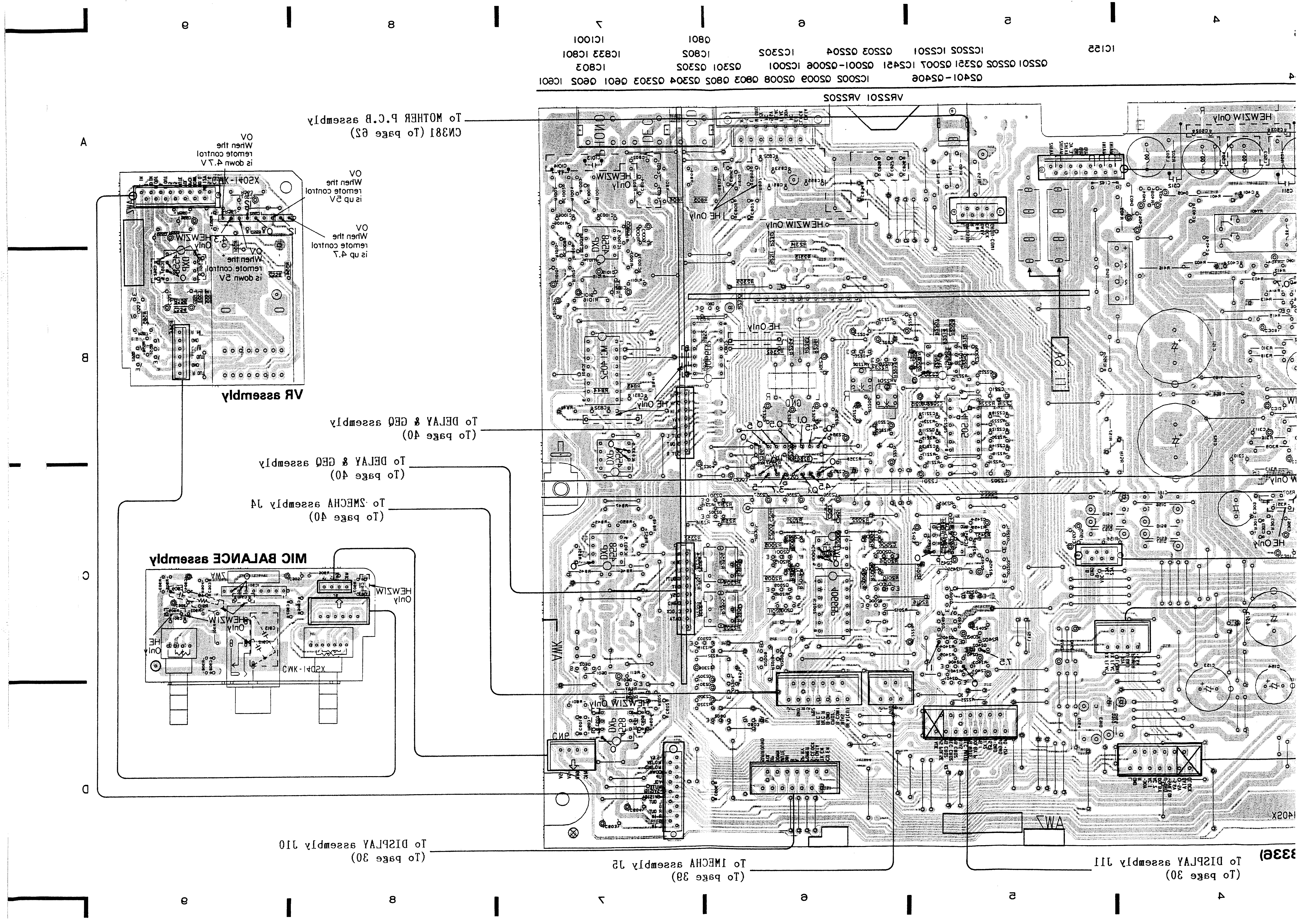
1 MECHA unit (EXK2020) (2/2)

2 MECHA assembly

2 MECHA unit (EXK2010) (2/2)


To AF assembly CN5
(To page 47)
To AF assembly CN4
(To page 47)
PB LEVEL
IC2001
RC4558
AWZ
ANP1456- B
R
G
L
HEAD
R ch
L ch
HEAD
E
R ch
L ch
BIAS
BIAS LEVEL
11.8V
During REC
normal 8.5V
cro2 11.6V
11.8V
During REC
normal 11.7V
cro2 11V
11.8V
During REC
normal 11.7V
cro2 11.6V
AWZ
RC4558
PB LEVEL
AWV

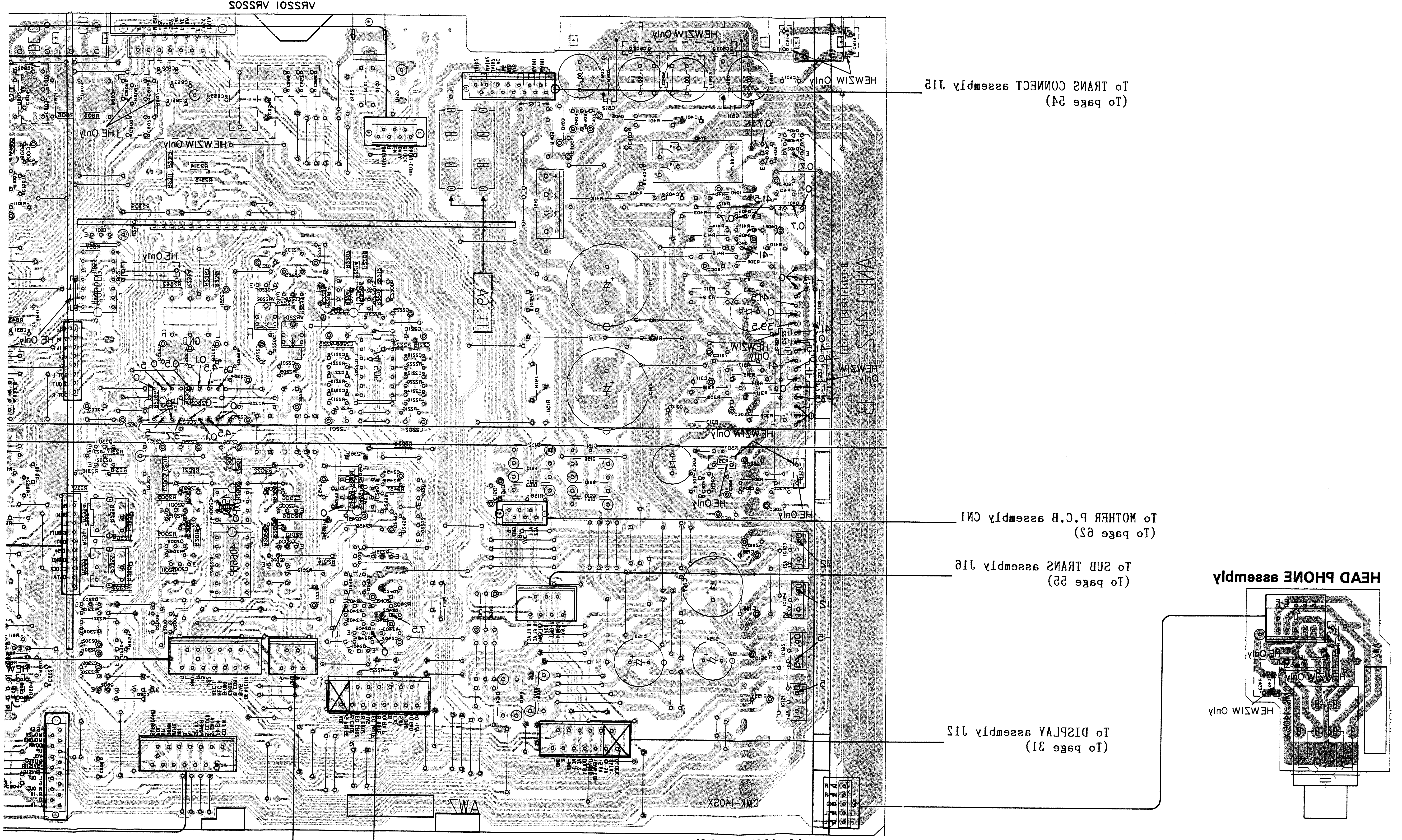

1
2
3
4
5
6
A
B
C
D
GEQ assembly (AWX1048)
AWX
CMK-140SX
ANP1457-B
To AF assembly
(To page 48)
To AF assembly
(To page 48)
To AF assembly CN4
(To page 47)
To AF assembly CN5
(To page 47)
2 MECHA assembly
L BIAS R
BIAS LEVEL
11.8V
During REC
normal 8.5V
croz 11.6V
11.8V
During REC
normal 11.7V
croz 11V
11.8V
During REC
normal 11.7V
croz 11.6V
AWZ
AWA
RC4558
PB LEVEL
1 MECHA unit
(EXK2020) (2/2)
HEAD
R ch
L ch
2 MECHA unit
(EXK2010) (2/2)
HEAD
E
R ch
L ch
1 MECHA assembly
PB LEVEL
RC4558
ZWA
ANP1456-B


IC155
IC2201 IC2202
Q2201 Q2202 Q2351 Q2007 IC2451
Q2401–Q2406
Q2203 Q2204
IC2302
Q2001–Q2006 IC2001
Q2301 Q2302
IC2002 Q2002 Q2009 Q2008 Q803 Q802 Q2304 Q2303 Q601 IC601 Q602 IC601
Q801
IC802
IC1001
IC801 IC833
IC803
VR2201 VR2202
To MOTHER P.C.B assembly CN381 (To page 62)
To DELAY & GEQ assembly (To page 40)
To DELAY & GEQ assembly (To page 40)
To 2MECHA assembly J4 (To page 40)
To DISPLAY assembly J10 (To page 30)
To 1MECHA assembly J5 (To page 39)
To DISPLAY assembly J11 (To page 30)
VR assembly
MIC BALANCE assembly
0V When the remote control is down 4.7V
0V When the remote control is up 5V
0V When the remote control is up 4.7
0V When the remote control is down 5V
HEWZIW Only
HE Only
XS041-XWD
CWK-1SOX
A
B
C
D
9
8
7
6
5
4

IC151 IC152 IC154
Q401–Q406
IC301

IC155

Q801
IC2201 IC2202 Q2203 Q2204 IC2302 IC802
Q2201 Q2202 Q2351 Q2007 IC2451 Q2001–Q2006 IC2001 Q2301 Q2302
Q2401–Q2406 IC2002 Q2009 Q2008 Q803 Q802 Q2304 Q2303


VR2201 VR2202
HEWZIW Only
HE Only
CMK-140SX
AWZ
1
2
3
4
5
6
A
B
C
D

To TRANS CONNECT assembly J15
(To page 54)

To MOTHER P.C.B assembly CN1
(To page 62)

To SUB TRANS assembly J16
(To page 55)

To DISPLAY assembly J12
(To page 31)

HEAD PHONE assembly

AF assembly (AWZ3336)

To DISPLAY assembly J11
(To page 30)

To IMECHA assembly
(To page 39)

3.4 AF (AWZ3336), HEAD PHONE, VR and MIC BALANCE assembly

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

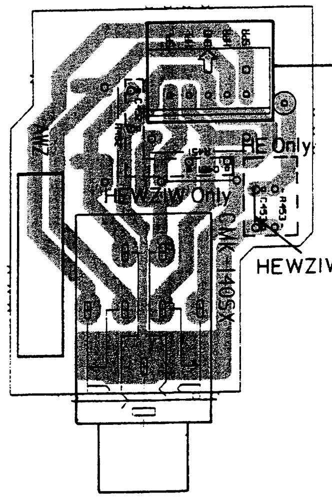
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
E○ 0504 ○ ○	E○ ○ ○ or E○ ○ ○	Transistor
0215 ○ ○ ○	○ ○ ○ or ○ ○ ○	Radiator type transistor
◎ D203 ○	D203 ○—▶|—○	Diode
○ R237 ○	R237	Resistor
◎ C513 ○	+	Capacitor (Polarity)
C518	○—||—○	Capacitor (Non-polarity)

Others

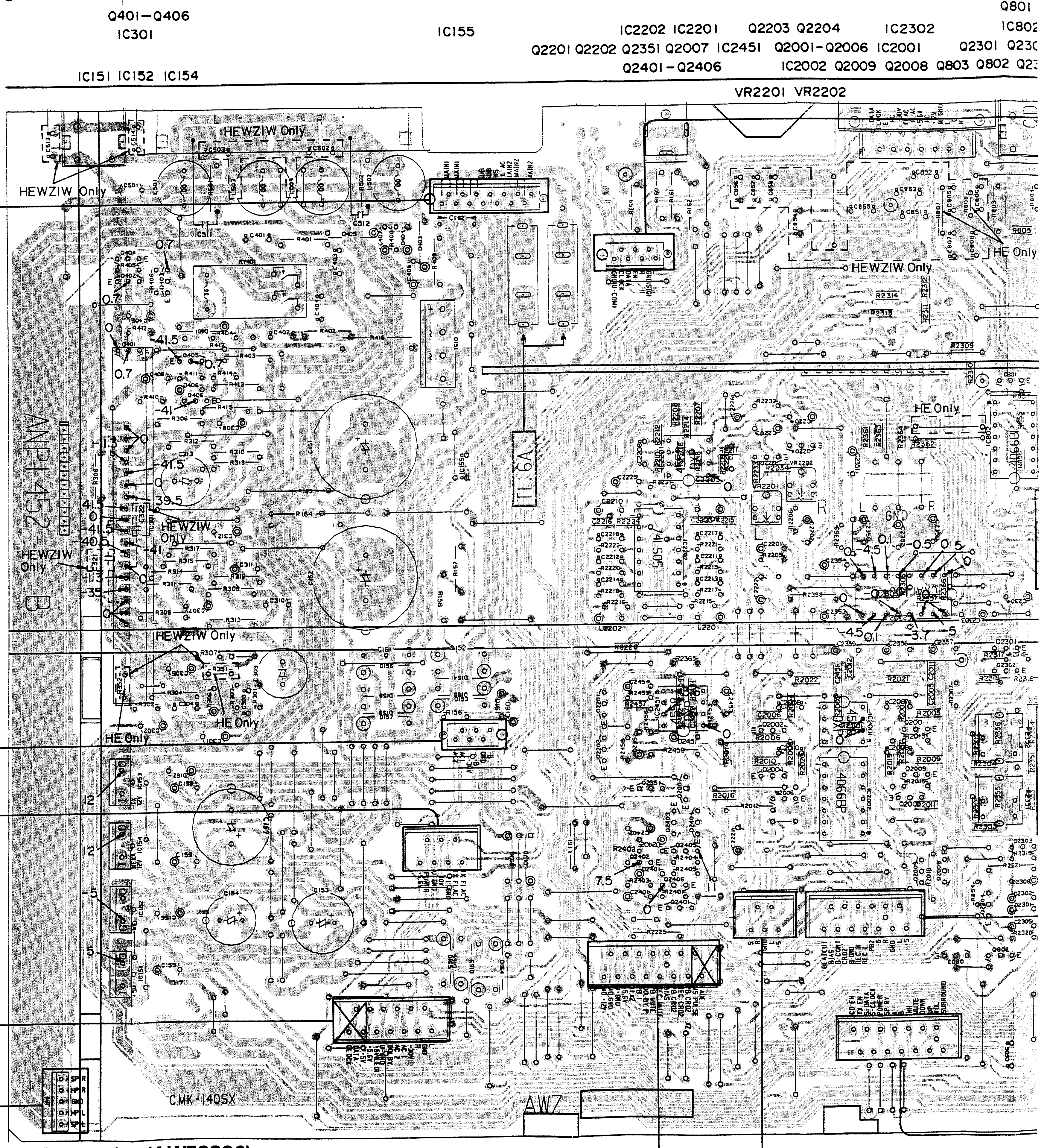
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

HEAD PHONE assembly



HE Only
HEWZIW Only
HEWZIW Only
CMK-140SX



Q401–Q406
IC301
IC151 IC152 IC154
IC155
IC2202 IC2201
Q2201 Q2202 Q2351 Q2007 IC2451
Q2401–Q2406
Q2203 Q2204
Q2001–Q2006
IC2002 Q2009 Q2008
IC2302
IC2001
Q803 Q802
Q801
IC802
Q2301
VR2201 VR2202
HEWZIW Only
HEWZIW Only
HE Only
HEWZIW Only
HE Only
HEWZIW Only
HEWZIW Only
HE Only
HE Only
ANP1452-B
4050
4066BP
4066BP
CMK-140SX
AWZ

To TRANS CONNECT assembly J15
(To page 54)

To MOTHER P.C.B assembly CN1
(To page 62)

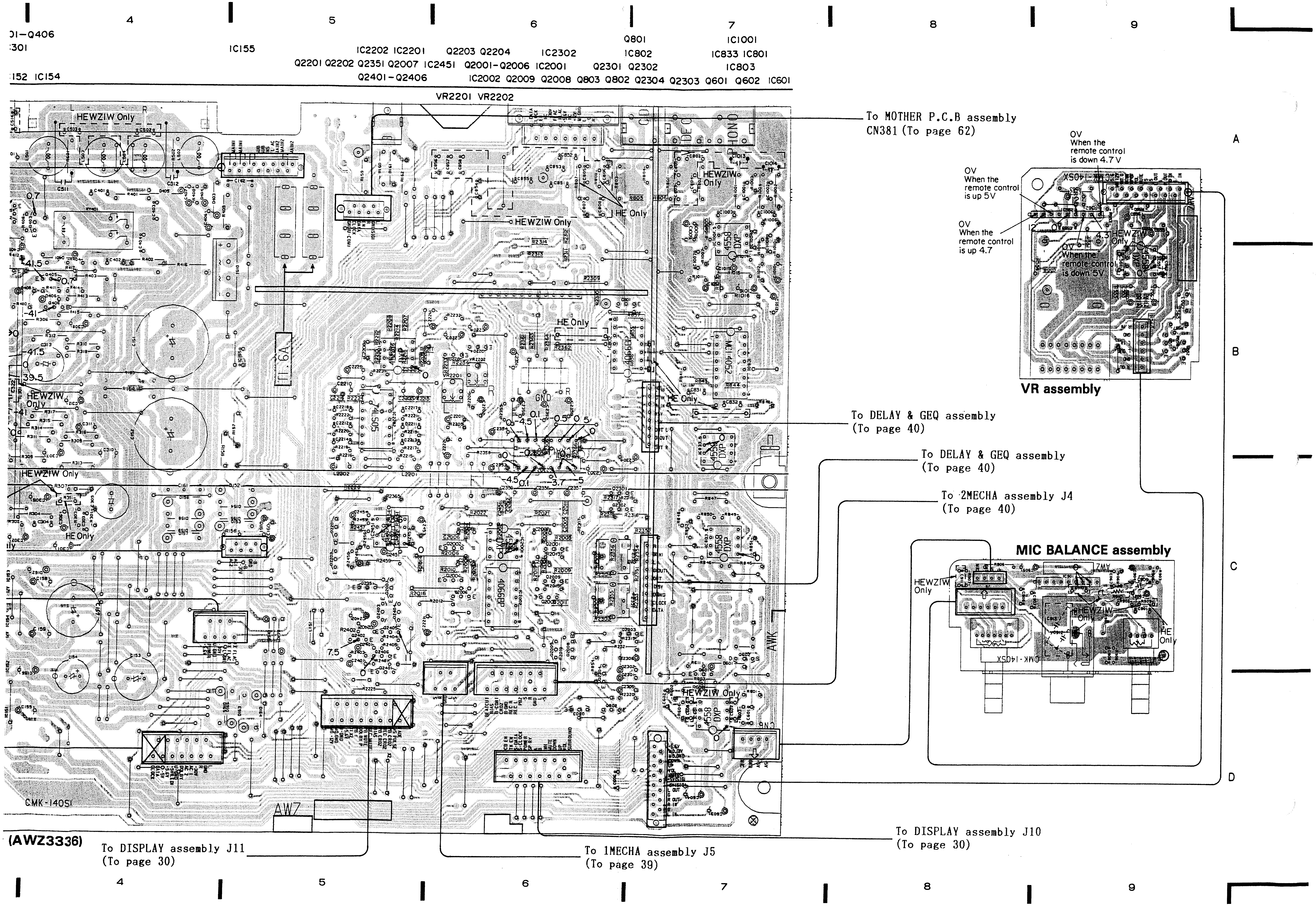
To SUB TRANS assembly J16
(To page 55)

To DISPLAY assembly J12
(To page 31)

AF assembly (AWZ3336)

To DISPLAY assembly J11
(To page 30)

To 1MECH
(To page


4
5
6
7
8
9
ɔı–Q406
:301
:152 IC154
IC155
IC2202 IC2201
Q2201 Q2202 Q2351 Q2007 IC2451
Q2401–Q2406
Q2203 Q2204
Q2001–Q2006
IC2002 Q2009 Q2008
IC2302
IC2001
Q801
IC802
Q2301 Q2302
Q803 Q802 Q2304
IC1001
IC833 IC801
IC803
Q2303 Q601 Q602 IC601
VR2201 VR2202
HEWZIW Only
HE Only
0V
When the
remote control
is down 4.7 V
0V
When the
remote control
is up 5V
0V
When the
remote control
is up 4.7
0V
When the
remote control
is down 5V
A
B
C
D
CMK-140SX
AWZ
AWK

To MOTHER P.C.B assembly
CN381 (To page 62)

VR assembly

To DELAY & GEQ assembly
(To page 40)

To DELAY & GEQ assembly
(To page 40)

To 2MECHA assembly J4
(To page 40)

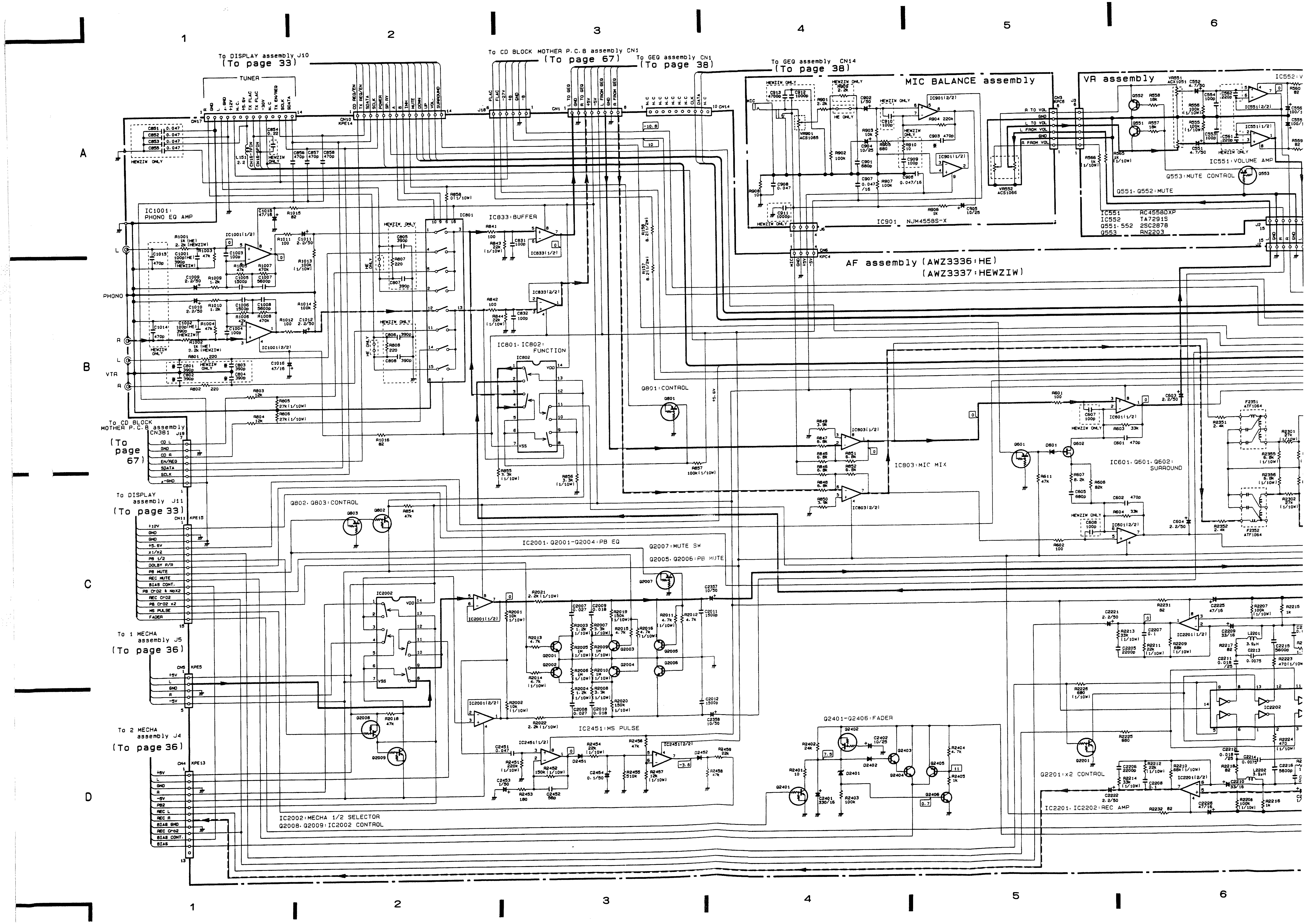
MIC BALANCE assembly

(AWZ3336)

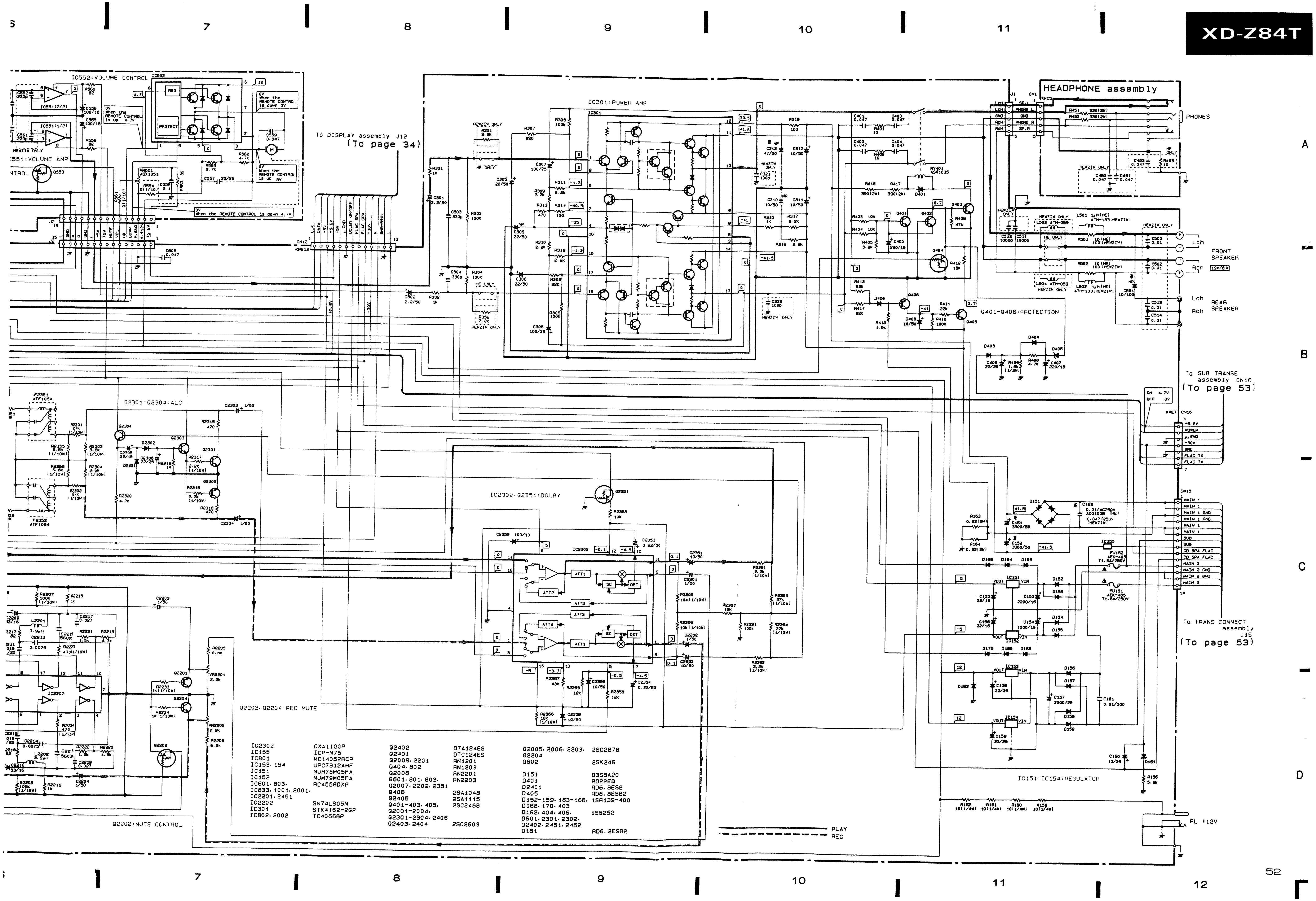
To DISPLAY assembly J11
(To page 30)

To 1MECHA assembly J5
(To page 39)

To DISPLAY assembly J10
(To page 30)



1
2
3
4
5
6
A
B
C
D
To DISPLAY assembly J10
(To page 33)
TUNER
To CD BLOCK MOTHER P.C.B assembly CN1
(To page 67)
To GEQ assembly CN1
(To page 38)
To GEQ assembly CN14
(To page 38)
MIC BALANCE assembly
VR assembly
IC552:V
HEWZIW ONLY
HE ONLY
IC1001:
PHONO EQ AMP
IC833:BUFFER
IC901 NJM4558S-X
IC551:VOLUME AMP
Q553:MUTE CONTROL
Q551, Q552:MUTE
IC551 RC4558DXP
IC552 TA7291S
Q551, 552 2SC2878
Q553 RN2203
AF assembly (AWZ3336:HE)
(AWZ3337:HEWZIW)
L
PHONO
R
L
VTR
R
IC801, IC802:
FUNCTION
Q801:CONTROL
To CD BLOCK
MOTHER P.C.B assembly
CN381
(To page 67)
CD L
GND
CD R
EN/REQ
SDATA
SCLK
-5V
IC803:MIC MIX
IC601, Q601, Q602:
SURROUND
To DISPLAY assembly J11
(To page 33)
+12V
GND
GND
+5.6V
x1/x2
PB 1/2
DOLBY P/R
PB MUTE
REC MUTE
BIAS CONT.
PB CrO2 & MoX2
REC CrO2
PB CrO2 x2
MS PULSE
FADER
Q802, Q803:CONTROL
IC2001, Q2001-Q2004:PB EQ
Q2007:MUTE SW
Q2005, Q2006:PB MUTE
To 1 MECHA
assembly J5
(To page 36)
+5V
L
GND
R
-5V
IC2451:MS PULSE
Q2401-Q2406:FADER
To 2 MECHA
assembly J4
(To page 36)
+5V
L
GND
R
-5V
PB2
REC L
REC R
BIAS GND
REC CrO2
BIAS CONT.
BIAS
IC2002:MECHA 1/2 SELECTOR
Q2008, Q2009:IC2002 CONTROL
Q2201:x2 CONTROL
IC2201, IC2202:REC AMP


6
7
8
9
10
11
12
IC552:VOLUME CONTROL
IC551:VOLUME AMP
IC552
REG
PROTECT
0V When the REMOTE CONTROL is down 5V
0V When the REMOTE CONTROL is up 4.7V
0V When the REMOTE CONTROL is up 5V
0V When the REMOTE CONTROL is down 4.7V
VR551 ACX1051
Q553
HEWZIW ONLY
To DISPLAY assembly J12
(To page 34)
J2
CN12
KPE13
CLK
DATA
-5V
+5.6V
+5V
r.GND
DOLBY ON/OFF
FLAC SPA
-30V
R
SWD(STB)
L
IC301:POWER AMP
IC301
HEWZIW ONLY
HE ONLY
HEADPHONE assembly
J1
CN1
KPC5
SP.L
PHONE L
GND
PHONE R
SP.R
PHONES
RY401 ASR1035
Q401-Q406:PROTECTION
FRONT SPEAKER
REAR SPEAKER
Lch
Rch
19V/8Ω
To SUB TRANSE assembly CN16
(To page 53)
CN16
KPE7
+5.6V
POWER
r.GND
-30V
GND
FLAC TX
ON 4.7V
OFF 0V
CN15
MAIN 1
MAIN 1 GND
SUB
CD SPA FLAC
MAIN 2
MAIN 2 GND
To TRANS CONNECT assembly J15
(To page 53)
IC151-IC154:REGULATOR
FU152 AEK-405 T1.6A/250V
FU151 AEK-405 T1.6A/250V
PL +12V
Q2301-Q2304:ALC
F2351 ATF1064
F2352 ATF1064
IC2302.Q2351:DOLBY
IC2302
ATT1
ATT2
ATT3
SC
DET
Q2203.Q2204:REC MUTE
Q2202:MUTE CONTROL
IC2202
PLAY
REC

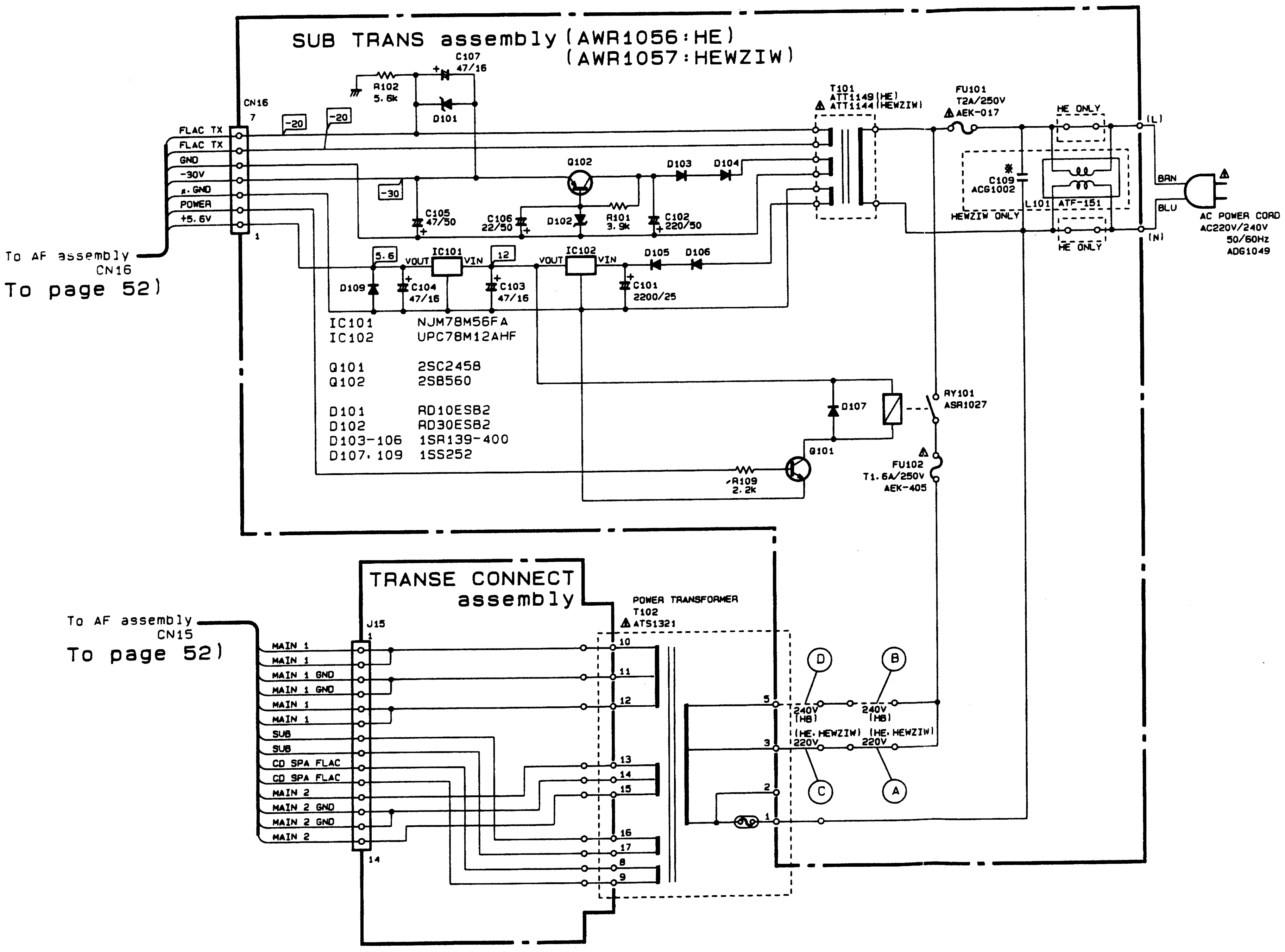
IC2302	CXA1100P
IC155	ICP-N75
IC801	MC14052BCP
IC153, 154	UPC7812AHF
IC151	NJM78M05FA
IC152	NJM79M05FA
IC601, 803, IC833, 1001, 2001, IC2201, 2451	RC4558DXP
IC2202	SN74LS05N
IC301	STK4162-2GP
IC802, 2002	TC4066BP

Q2402	DTA124ES
Q2401	DTC124ES
Q2009, 2201	RN1201
Q404, 802	RN1203
Q2008	RN2201
Q601, 801, 803, Q2007, 2202, 2351	RN2203
Q406	2SA1048
Q2405	2SA1115
Q401-403, 405, Q2001-2004, Q2301-2304, 2406	2SC2458
Q2403, 2404	2SC2603

Q2005, 2006, 2203, Q2204	2SC2878
Q602	2SK246
D151	D3SBA20
D401	RD22EB
D2401	RD6.8ESB
D405	RD6.8ESB2
D152-159, 163-166, D168, 170, 403	1SR139-400
D162, 404, 406, D601, 2301, 2302, D2402, 2451, 2452	1SS252
D161	RD6.2ESB2

3.5 SUB TRANS (AWR1

TRANS CONNECT assembly


SUB TRANS assembly (AWR1056:HE)
(AWR1057:HEWZIW)
CN16
7
1
FLAC TX
FLAC TX
GND
-30V
µ. GND
POWER
+5.6V
To AF assembly
CN16
To page 52)
-20
-20
-30
5.6
12
R102
5.6k
C107
47/16
D101
Q102
D103
D104
C105
47/50
C106
22/50
D102
R101
3.9k
C102
220/50
IC101
VOUT
VIN
IC102
D105
D106
D109
C104
47/16
C103
47/16
C101
2200/25
IC101 NJM78M56FA
IC102 UPC78M12AHF
Q101 2SC2458
Q102 2SB560
D101 RD10ESB2
D102 RD30ESB2
D103-106 1SR139-400
D107, 109 1SS252
T101
ATT1149 (HE)
ATT1144 (HEWZIW)
FU101
T2A/250V
AEK-017
HE ONLY
C109
ACG1002
HEWZIW ONLY
L101 ATF-151
HE ONLY
(L)
(N)
BRN
BLU
AC POWER CORD
AC220V/240V
50/60Hz
ADG1049
D107
RY101
ASR1027
Q101
R109
2.2k
FU102
T1.6A/250V
AEK-405
To AF assembly
CN15
To page 52)
TRANSE CONNECT assembly
J15
1
14
MAIN 1
MAIN 1
MAIN 1 GND
MAIN 1 GND
MAIN 1
MAIN 1
SUB
SUB
CD SPA FLAC
CD SPA FLAC
MAIN 2
MAIN 2 GND
MAIN 2 GND
MAIN 2
POWER TRANSFORMER
T102
ATS1321
10
11
12
13
14
15
16
17
8
9
5
3
2
1
D
B
240V (HB)
240V (HB)
(HE, HEWZIW) 220V
(HE, HEWZIW) 220V
C
A

Line Voltage Selection
(For HE and HEWZIW types)

Line voltage can be changed with the following steps.

1. Disconnect the AC Power cord.
2. Remove the top cover.
3. Change the position of the jumper wires Ⓐ – Ⓓ as follows ;

Jumper wire \ Voltage	220V	240V
Ⓐ	○	×
Ⓑ	×	○
Ⓒ	○	×
Ⓓ	×	○

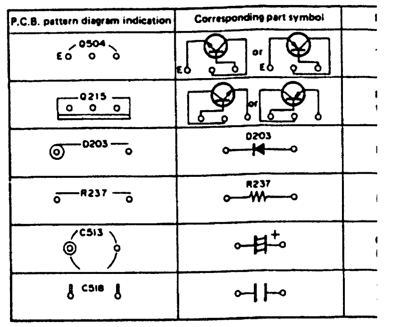
○ : Be needed
× : Be needless

4. Stick the line voltage label on the rear panel.

Description	Part No.
220V lavel	AAX−193
240V label	AAX−192

NOTE

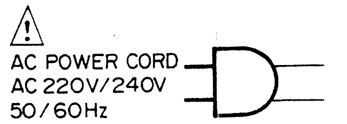
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced wi with the corresponding wiring symbols listed in the following Table.


P.C.B. pattern diagram indication
Corresponding part symbol
Q504
E
Q215
D203
R237
C513
C518
or

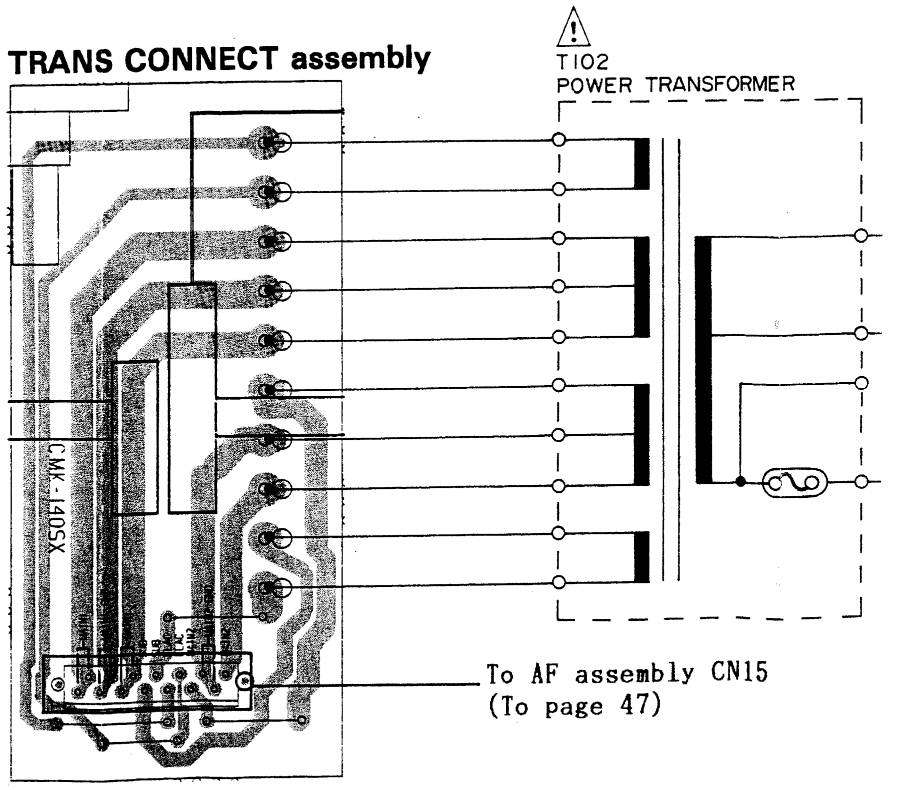
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎ (double circles) shows negatine te
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.


AC POWER CORD
AC 220V/240V
50/60Hz

TRANS CONNECT assembly


T102
POWER TRANSFORMER
CMK-1405X
To AF assembly CN15
(To page 47)

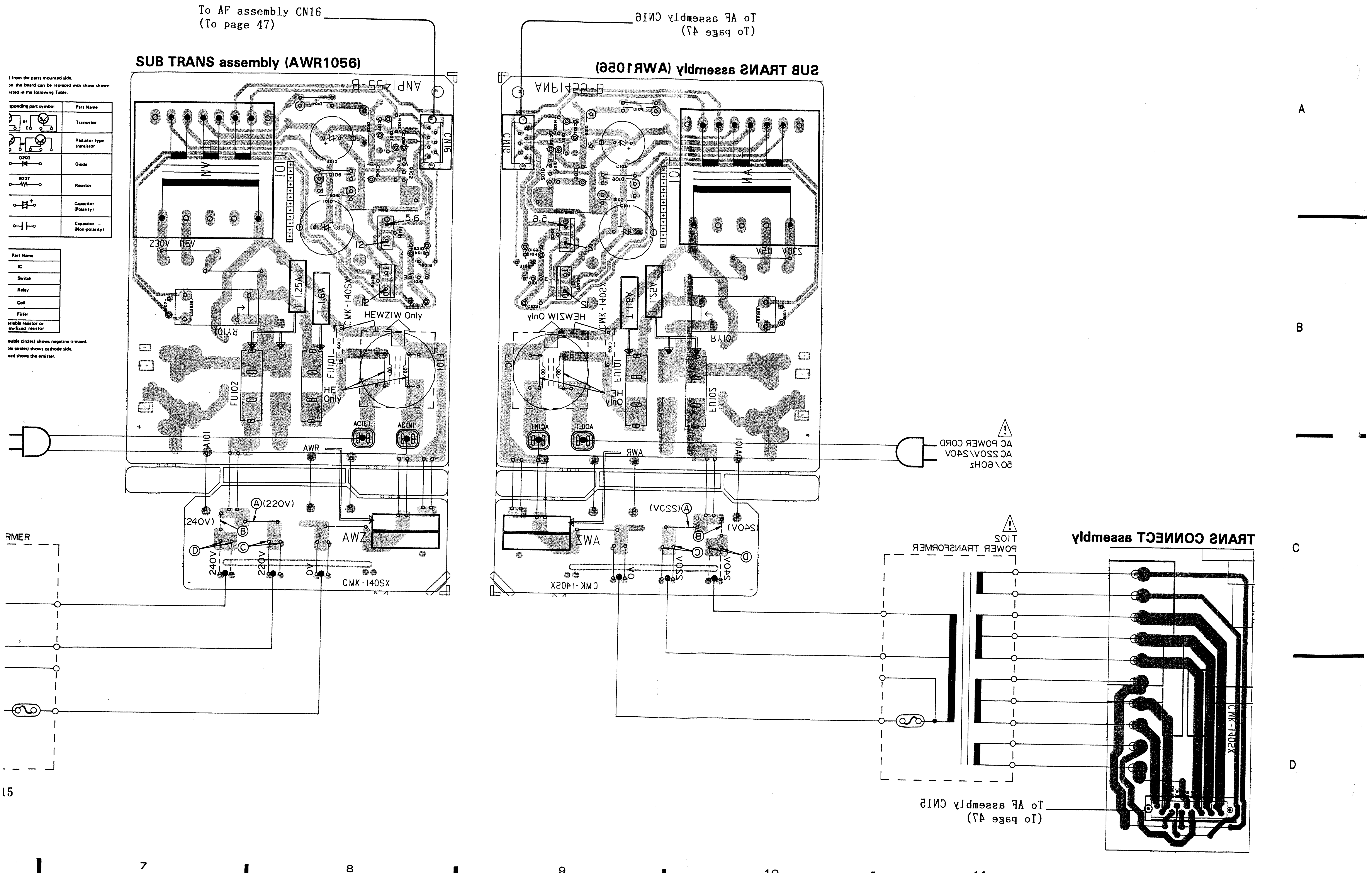
l from the parts mounted side.
on the board can be replaced with those shown
isted in the following Table.

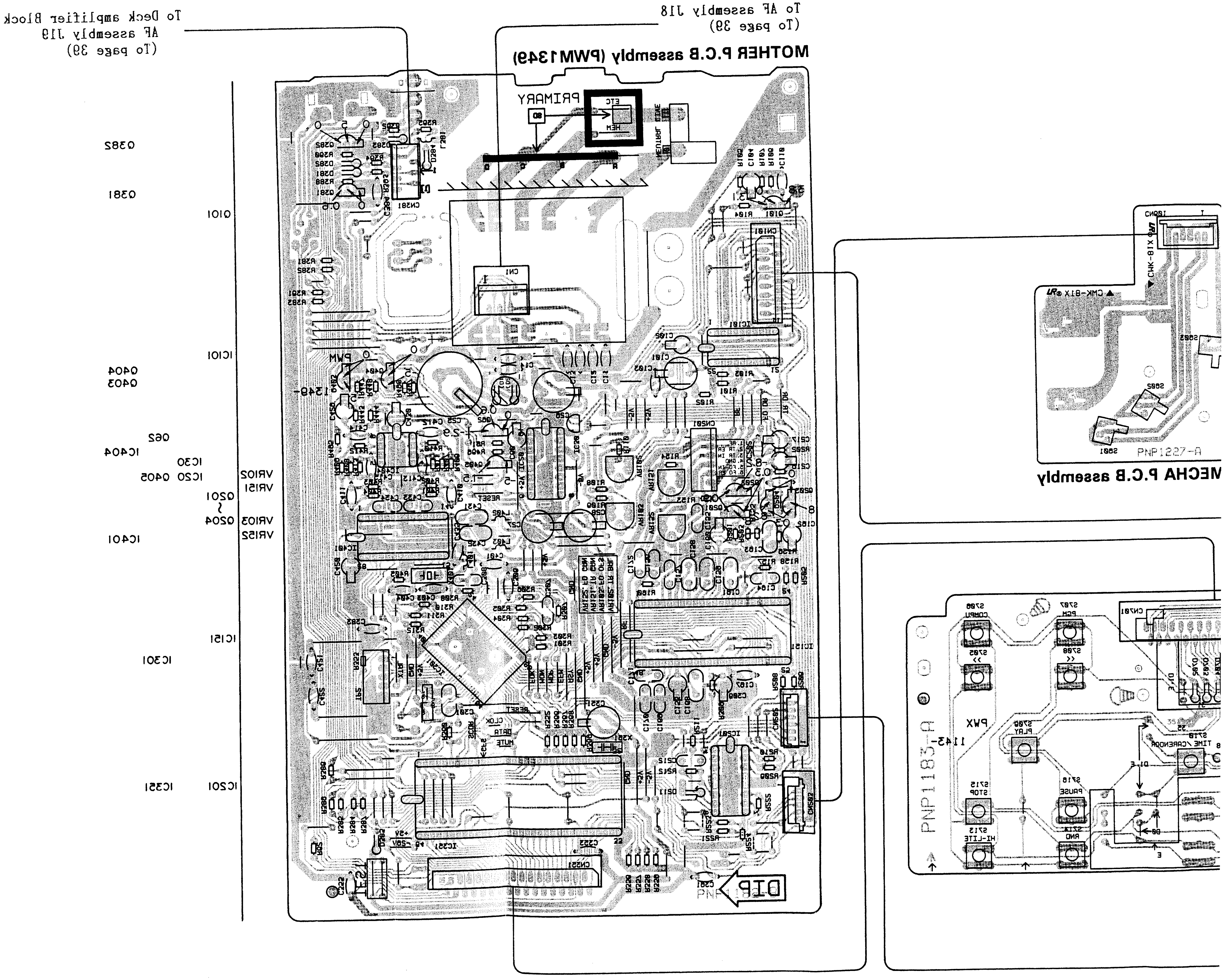
sponding part symbol	Part Name
or E	Transistor
or	Radiator type transistor
D203	Diode
R237	Resistor
+	Capacitor (Polarity)
	Capacitor (Non-polarity)

Part Name
IC
Switch
Relay
Coil
Filter
ariable resistor or mi-fixed resistor

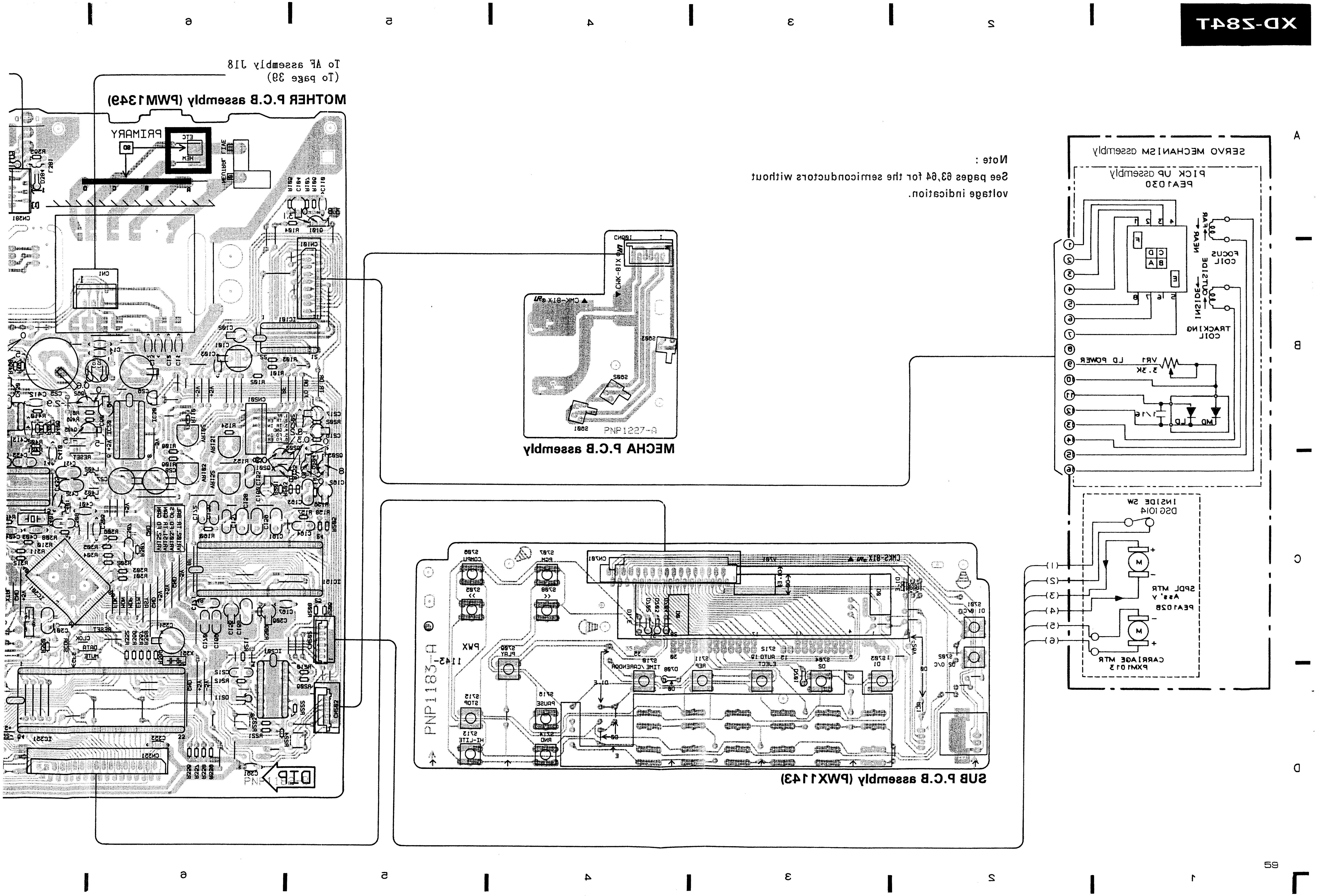
ouble circles) shows negatine termiani.
ole circles) shows cathode side.
xed shows the emitter.

SUB TRANS assembly (AWR1056)


7
8
9
10
11
12
A
B
C
D
To AF assembly CN16
(To page 47)
ANP1455-B
CN16
IC101
5.6
12
230V
115V
T1.25A
T1.6A
CMK-140SX
HEWZIW Only
RY101
FU102
FU101
HE Only
F101
AC(L)
AC(N)
A101
AWR
Ⓐ(220V)
(240V)
Ⓑ
Ⓒ
Ⓓ
240V
220V
0V
AWZ
CMK-140SX
RMER
SUB TRANS assembly (AWR1056)
AC POWER CORD
AC220V/240V
50/60Hz
T102
POWER TRANSFORMER
TRANS CONNECT assembly
To AF assembly CN15
(To page 47)

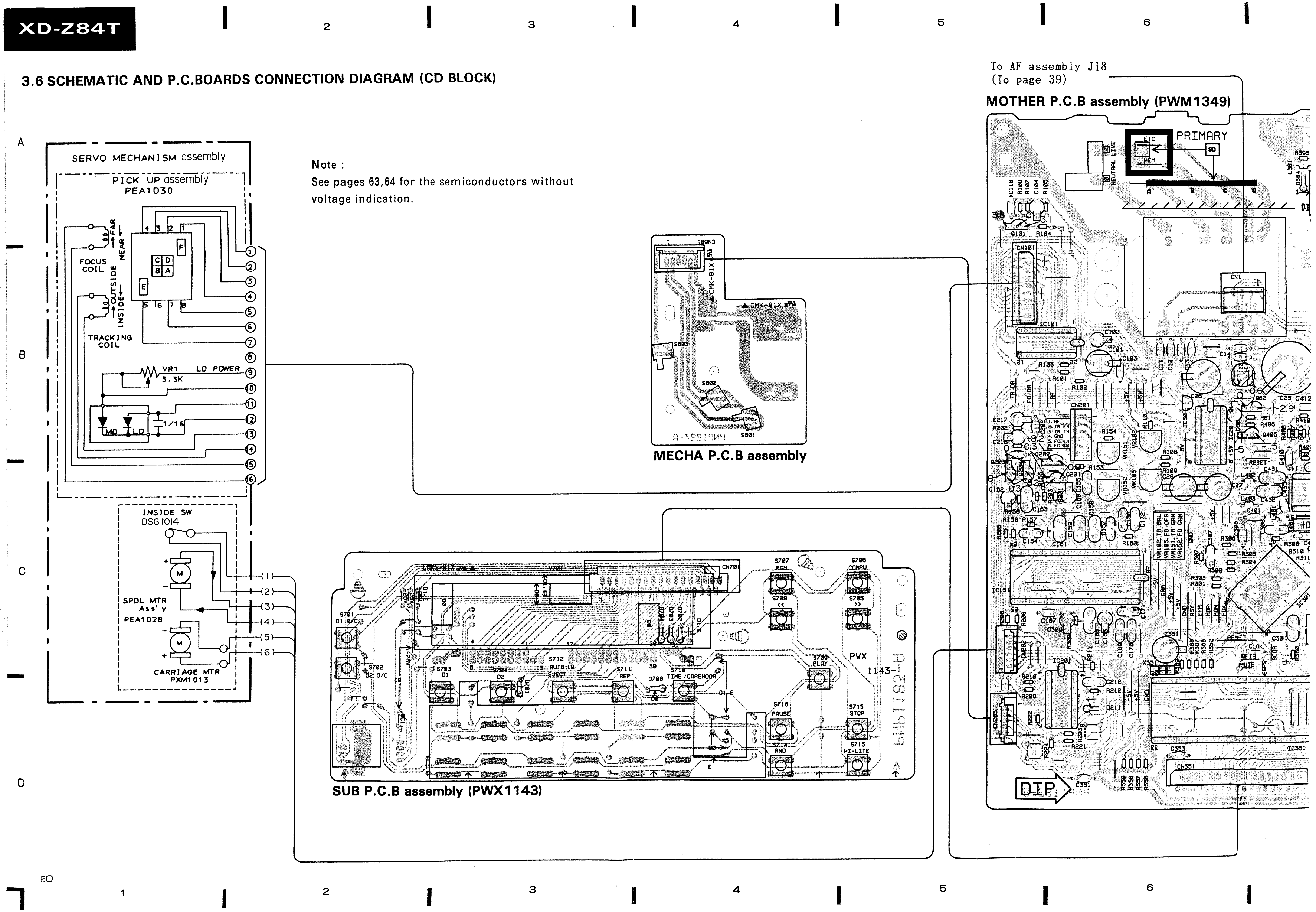

To Deck amplifier Block
AF assembly J19
(To page 39)
To AF assembly J18
(To page 39)
MOTHER P.C.B assembly (PWM1349)
PRIMARY
MECHA P.C.B assembly
PNP1557-A
CMK-81X
PNP1183-A
PWX 1143-
DIP
Q382
Q381
IC101
Q404
Q403
Q62
IC404
IC30
IC20
Q405
Q201 ~ Q204
VR102
VR151
VR103
VR152
IC401
IC151
IC301
IC351
IC201
S706 COMPU
S707 PGM
S705 <<
S708 >>
S709 PLAY
S715 STOP
S716 PAUSE
S713 HI-LITE
S712 RND
S710 TIME/CA
CN1
CN101
CN381
CN201
CN351
CN701
RESET
CLK
DATA
MUTE

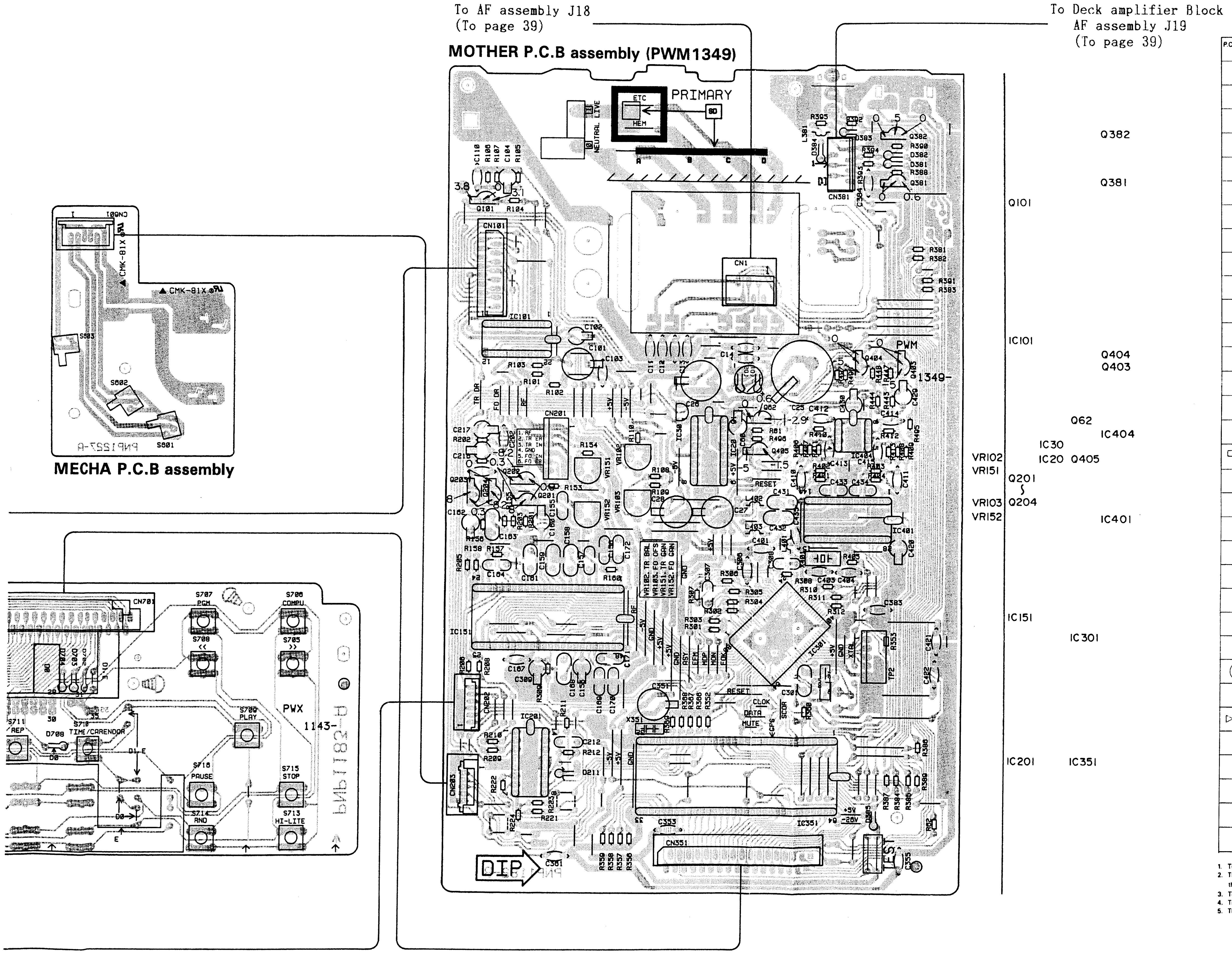
Note :
See pages 63,64 for the semiconductors without voltage indication.

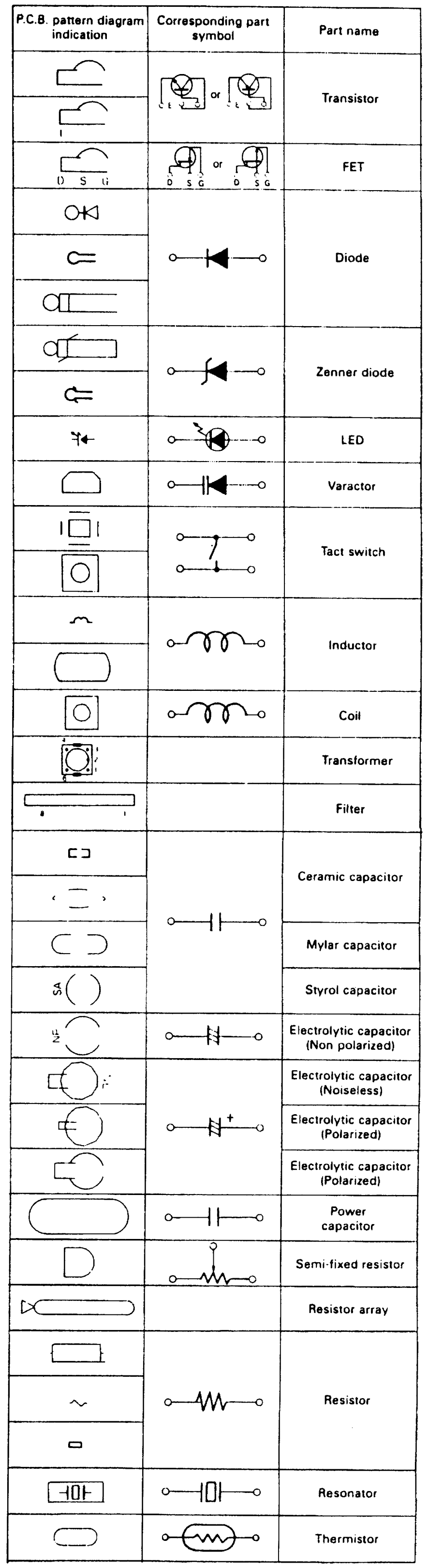

To AF assembly J18
(To page 39)
MOTHER P.C.B assembly (PWM1349)
PRIMARY
ETC
MECHA P.C.B assembly
CMK-81X
PNP1227-A
SUB P.C.B assembly (PWX1143)
PNP1183-A
PWX 1143-
DIP
SERVO MECHANISM assembly
PICK UP assembly
PEA1030
FOCUS COIL
TRACKING COIL
INSIDE
OUTSIDE
LD POWER
VR1 3.3K
LD
MD
INSIDE SW
DSG1014
SPDL MTR Ass'y
PEA1028
CARRIAGE MTR
PXM1013
1
2
3
4
5
6
A
B
C
D

3.6 SCHEMATIC AND P.C.BOARDS CONNECTION DIAGRAM (CD BLOCK)

Note :
See pages 63,64 for the semiconductors without voltage indication.


1
2
3
4
5
6
A
B
C
D
SERVO MECHANISM assembly
PICK UP assembly
PEA1030
FOCUS COIL
FAR
NEAR
OUTSIDE
INSIDE
TRACKING COIL
VR1
3.3K
LD POWER
MD
LD
1/16
INSIDE SW
DSG1014
SPDL MTR Ass'y
PEA1028
CARRIAGE MTR
PXM1013
M
MECHA P.C.B assembly
CN001
CMK-81X
S603
S602
S601
PNP1227-A
SUB P.C.B assembly (PWX1143)
CMKS-81X
CN701
V701
S701 D1 O/C
S702 D2 O/C
S703 D1
S704 D2
S712 AUTO 10 EJECT
S711 REP
S710 TIME/CARENDOR
S707 PCM
S706 COMPU
S708 <<
S705 >>
S709 PLAY
S716 PAUSE
S715 STOP
S714 RND
S713 HI-LITE
D708
PWX 1143-B
PNP1182-H
To AF assembly J18
(To page 39)
MOTHER P.C.B assembly (PWM1349)
PRIMARY
ETC
HEM
NEUTRAL
LIVE
CN1
CN101
IC101
CN201
CN202
CN203
IC151
IC201
IC301
IC351
CN351
X351
VR102. TR BAL
VR103. FO OFS
VR151. TR GAN
VR152. FO GAN
RESET
CLOK
DATA
MUTE
DIP


To AF assembly J18
(To page 39)
MOTHER P.C.B assembly (PWM1349)
To Deck amplifier Block
AF assembly J19
(To page 39)
PRIMARY
ETC
HEM
NEUTRAL
LIVE
PWM
1349-
MECHA P.C.B assembly
CMK-81X
PNP1227-A
S801
S802
S803
CN001
PWX
1143-
CN701
S707 PCM
S706 COMPU
S708 <<
S705 >>
S709 PLAY
S711 REP
S712 TIME/CARENDOR
S710 PAUSE
S715 STOP
S714 RND
S713 HI-LITE
D708
DIP
IC101
CN101
CN201
CN202
CN203
CN351
CN381
CN1
IC151
IC201
IC351
IC301
IC401
IC404
RESET
CLOCK
DATA
MUTE
Q101
IC101
VR102
VR151
Q201
~
Q204
VR103
VR152
IC151
IC201
Q382
Q381
Q404
Q403
Q62
IC404
IC30
IC20
Q405
IC401
IC301
IC351
4
5
6
4
5
6
A
B
C
D



P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

1. RESISTORS:
   Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ▭ : DC voltage (V) at play state.
   Value in ( ) is DC voltage at rated power.
   ⇦ mA : DC current at no input signal

4. OTHERS:
   ➡ : Signal route.
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCH

MECHA PCB Assembly

S601	U
S602	S
S603	L

SUB PCB Assembly

S701	O/C D1
S702	O/C D2
S703	D1
S704	D2
S705	▶▶ (▶▶|)
S706	COMPU
S707	PGM
S708	◀◀ (|◀◀)
S709	▶
S710	TIME/CALENDER
S711	REP
S712	AUTO EJECT
S713	HI LITE
S714	RND
S715	STOP
S716	PAUSE

List of semiconductor terminal voltage

Note: All terminal voltages are measured in the PLAY mode.

IC151
CXA1372S

Pin No.	Volts	Pin No.	Volts
1	0	25	-5
2	0	26	5
3	0	27	5
4	0	28	5
5	0	29	5
6	0	30	5
7	0	31	5
8	0	32	0
9	0	33	5
10	0	34	0
11	-1	35	0
12	0	36	N. C
13	0. 2	37	2. 5
14	0	38	2. 5
15	0	39	5
16	5	40	-1. 5
17	0	41	-1. 7
18	0	42	5
19	0	43	-0. 7
20	0.2~0.8	44	-1. 6
21	0	45	0
22	-4	46	0. 8
23	1. 3	47	-5
24	0	48	0

IC101
CXA1471S

Pin No.	Volts	Pin No.	Volts
1	N. C	16	0
2	2. 9	17	0
3	-4. 7	18	0. 8
4	0	19	0
5	0	20	5
6	-5	21	5
7	0	22	N. C
8	0		
9	N. C		
10	0		
11	N. C		
12	N. C		
13	-0. 9		
14	-0. 7		
15	0		

IC20
M5298P

Pin No.	Volts
1	-8.2
2	N.C
3	-5
4	0
5	-8.2
6	N.C
7	N.C
8	N.C
9	5
10	N.C
11	0.7
12	5
13	8
14	5
15	1.2
16	8

IC201
LA6520

Pin No.	Volts
1	0
2	0
3	-0.7
4	0
5	0
6	0
7	1.7
8	1.7
9	0.7
10	0
11	0
12	8
FIN	-8.2

IC351
PD4305A

Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts
1	-10	17	1.8	33	0	49	-22
2	-13.5	18	0	34	5	50	0
3	-5.5	19	5	35	0	51	5
4	-10.5	20	0.5	36	0	52	0
5	2.1	21	5	37	0	53	0
6	4.8	22	0	38	0	54	-26
7	4.5	23	0	39	5	55	-26
8	3.9	24	0	40	-22	56	-26
9	2.3	25	5	41	-22	57	-5
10	0	26	5	42	-22	58	-9
11	5	27	5	43	-22	59	-11
12	2.5	28	5	44	-22	60	5
13	5	29	5	45	-22	61	-2.5
14	5	30	2.5	46	-22	62	2
15	5	31	2.5	47	-22	63	-2.5
16	0	32	0	48	-22	64	5

IC404
NJM4558D-D

Pin No.	Volts
1	-0.2
2	1
3	1
4	-5
5	1
6	1
7	-0.2
8	5

IC401
TC9237N

Pin No.	Volts
1	5
2	0
3	5
4	5.5
5	2.5
6	2.5
7	0
8	0
9	2.5
10	2.5
11	5
12	0
13	N.C
14	0
15	0
16	1.9
17	1.9
18	5
19	2
20	0
21	0
22	0
23	0
24	5
25	2.5
26	2.5
27	2.5
28	5

IC301
CXD2500Q

Pin No.	Volts	Pin No.	Volts	Pin No.	Volts
1	5	31	N.C	61	N.C
2	N.C	32	2.5	62	N.C
3	5	33	5	63	0
4	2.6	34	2.5	64	N.C
5	N.C	35	2.5	65	0
6	5	36	N.C	66	3.3~4.6
7	N.C	37	N.C	67	5
8	N.C	38	N.C	68	0
9	0	39	N.C	69	2.1~3
10	0	40	N.C	70	5
11	N.C	41	N.C	71	5
12	0	42	5	72	5
13	N.C	43	N.C	73	5
14	N.C	44	N.C	74	5
15	N.C	45	N.C	75	5
16	N.C	46	4.4	76	0
17	0	47	0	77	5
18	2.5	48	0	78	5
19	2.4	49	0~0.3	79	5
20	2.4	50	N.C	80	0
21	0	51	N.C		
22	2.5	52	0		
23	5	53	2.5		
24	2.5	54	N.C		
25	N.C	55	0		
26	0	56	N.C		
27	2.5	57	N.C		
28	0	58	N.C		
29	N.C	59	0		
30	0	60	N.C		

1. RESISTORS:
   Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ± 10% (M); ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ▭ : Signal voltage at (45 W + 45 W 8Ω)output (1kHz)
   ▭ : DC voltage (V) at no input signal
   Value in ( ) is DC voltage at rated power.
   ⇦ mA : DC current at no input signal

4. OTHERS:
   ➡ : Signal route.
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

DISPLAY assembly

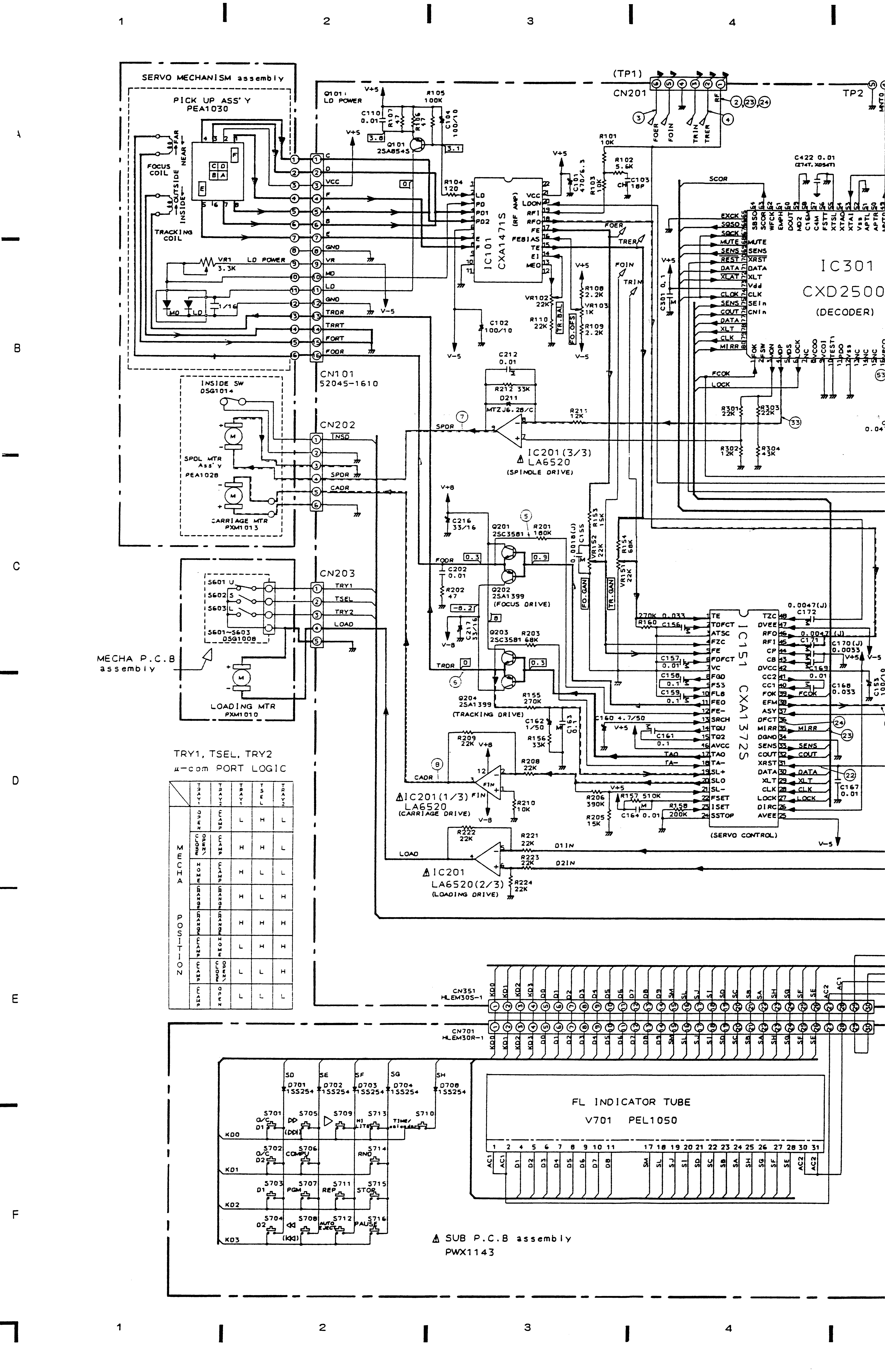
S1504	POWER
S1505	VIDEO
S1506	CD DIRECT
S1507	FADE/FINE
S1510	AI MEMO
S1511	AI BGM
S1512	PHONO
S1513	2 REC MUTE
S1514	DISCO
S1516	SURR
S1517	TAPE
S1518	2 REC
S1519	X2 COPY
S1522	CD
S1523	TX
S1524	2 PAUSE
S1525	X1 COPY
S1528	DOLBY NR ON/OFF
S1529	COM-A-B
S1530	MILD
S1531	VIVID
S1532	FLAY
S1533	/D
S1534	/B
S1535	MEMOLY
S1537	EQ ON/OFF
S1538	LEVEL UP
S1539	F DOWN
S1540	WARM
S1541	SHARP
S1542	/E
S1543	/C
S1544	/A
S1546	PGM/PRESET
S1547	F UP
S1548	LEVEL DOWN
S1549	ACTIVE LOUNDNESS

1 MECHA SW assembly

S1551	1 REV
S1552	1 PLAY
S1553	1 STOP
S1554	1 REW
S1555	1 FF

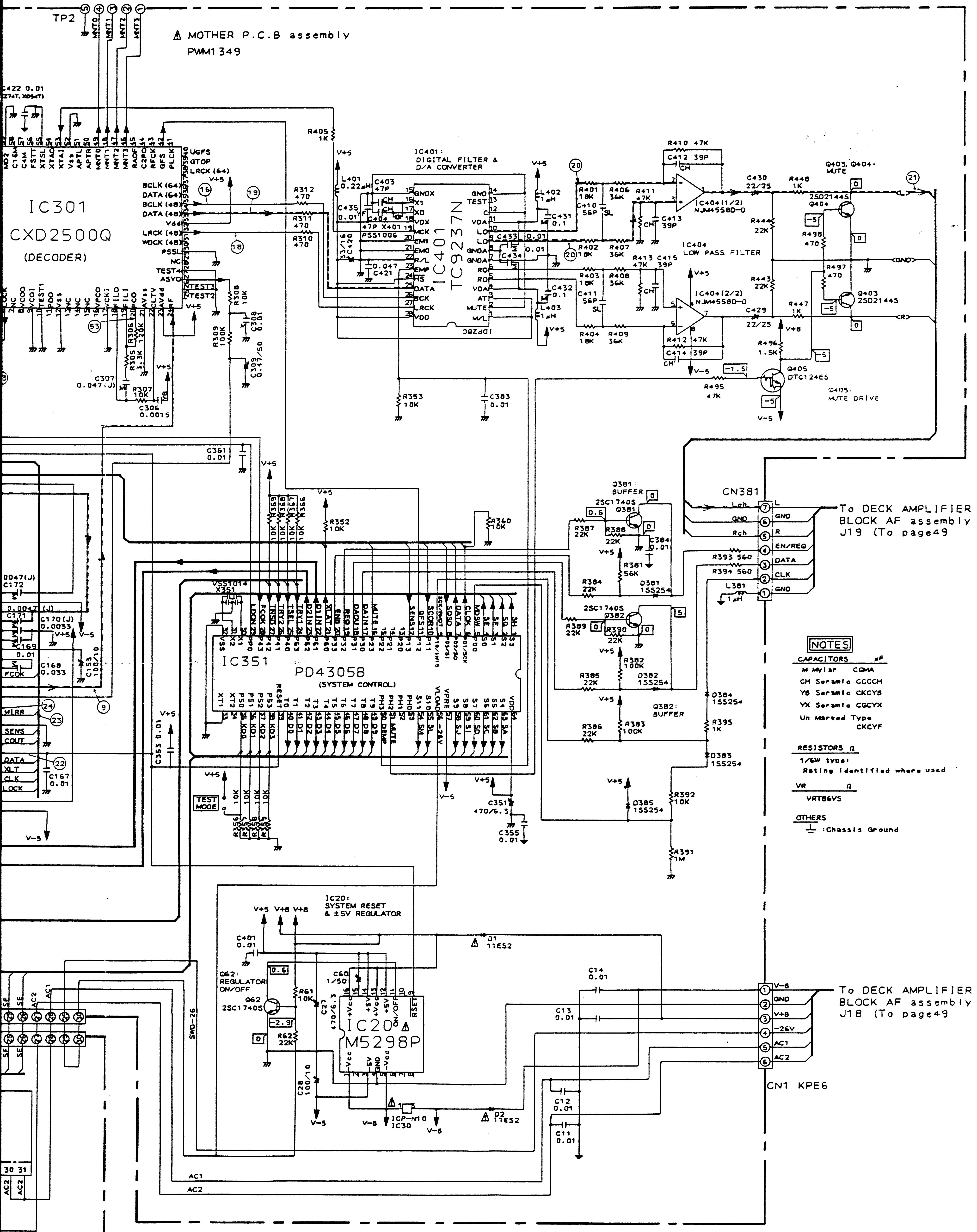
2 MECHA SW assembly

S1556	2 STOP
S1557	2 REV
S1558	2 PLAY
S1559	2 REW
S1560	2 FF


1
2
3
4
A
B
C
D
E
F
SERVO MECHANISM assembly
PICK UP ASS'Y
PEA1030
FOCUS COIL
FAR
NEAR
OUTSIDE
INSIDE
TRACKING COIL
VR1 3.3K
LD POWER
MD
LD
1/16
Q101: LD POWER
V+5
R105 100K
C110 0.01
R107 47
R106 47
C104 100/10
3.8
3.1
Q101 2SA854S
CN101 52045-1610
C
D
VCC
F
A
B
E
GND
VR
MD
LD
GND
TRDR
TRRT
FORT
FODR
V-5
R104 120
IC101 CXA1471S (RF AMP)
LD
PD
PD1
PD2
E
F
VCC
LDON
RF1
RFO
FE
FEBIAS
TE
EI
MEO
C101 470/6.3
R101 10K
R102 5.6K
R103 10K
C103 CH 18P
C102 100/10
VR102 22K
R110 22K
TR.BAL
R108 2.2K
VR103 1K
R109 2.2K
FO.OFS
(TP1)
CN201
RF
FOER
FOIN
TRIN
TRER
TP2
MNTO
C422 0.01 (Z74T, X054T)
SCOR
IC301 CXD2500 (DECODER)
EXCK
SQSO
SQCK
MUTE
SENS
REST
XRST
DATA
XLAT
XLT
Vdd
CLOK
CLK
SEIn
COUT
CNIn
MIRR
SBSO
WFCK
EMPH
DOUT
MD2
C16M
C4M
FSTT
XTSL
XTAO
XTAI
Vss
APTL
APTR
FOK
FSW
MON
MDP
MDS
LOCK
NC
VCOO
VCOI
TEST1
PDO
VPCO
C301 0.1
FCOK
R301 22K
R303 22K
R302 12K
R304 43K
C212 0.01
R212 33K
D211 MTZJ6.2B/C
R211 12K
SPDR
IC201(3/3) LA6520 (SPINDLE DRIVE)
CN202
INSIDE SW DSG1014
SPDL MTR Ass'y PEA1028
CARRIAGE MTR PXM1013
INSD
SPDR
CADR
V+8
C216 33/16
Q201 2SC3581
R201 180K
Q202 2SA1399 (FOCUS DRIVE)
FODR
C202 0.01
R202 47
-8.2
8
C217 33/16
V-8
Q203 2SC3581
R203 68K
Q204 2SA1399 (TRACKING DRIVE)
TRDR
0.3
0.9
0.3
R155 270K
C162 1/50
R156 33K
C163 0.1
C155 0.0018(J)
VR152 22K
FO.GAN
R153 15K
R154 68K
VR151 22K
TR.GAN
IC151 CXA1372S (SERVO CONTROL)
TE
TDFCT
ATSC
FZC
FE
FDFCT
VC
FGD
FS3
FLB
FEO
FE-
SRCH
TGU
TG2
AVCC
TAO
TA-
SL+
SLO
SL-
FSET
ISET
SSTOP
TZC
DVEE
RFO
RFI
CP
CB
DVCC
CC2
CC1
FOK
EFM
ASY
DFCT
MIRR
DGND
SENS
COUT
XRST
DATA
XLT
CLK
LOCK
DIRC
AVEE
R160 270K
0.033
C156
C157 0.01
C158 0.1
C159 0.1
C160 4.7/50
C161 0.1
R206 390K
R205 15K
R157 510K
C164 0.01
R158 200K
C172 0.0047(J)
C171 0.0047(J)
C170(J) 0.0033
C169 0.01
C168 0.033
C153 100/10
C167 0.01
R209 22K
CADR
IC201(1/3) LA6520 (CARRIAGE DRIVE)
R208 22K
R210 10K
FIN
R222 22K
R221 22K
R223 22K
R224 22K
D1IN
D2IN
LOAD
IC201 LA6520(2/3) (LOADING DRIVE)
CN203
S601 U
S602 S
S603 L
S601~S603 DSG1008
TRY1
TSEL
TRY2
LOAD
MECHA P.C.B assembly
LOADING MTR PXM1010
CN351 HLEM30S-1
CN701 HLEM30R-1
KD0
KD1
KD2
KD3
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
SM
SL
SJ
SD
SC
SB
SA
SH
SG
SF
SE
AC2
AC1
D701 1SS254
D702 1SS254
D703 1SS254
D704 1SS254
D708 1SS254
S701 O/C D1
S705
S709
S713 HI LITE
S710 TIME/calendar
S702 O/C D2
S706 COMP
S714 RND
S703 D1
S707 PGM
S711 REP
S715 STOP
S704 D2
S708
S712 AUTO EJECT
S716 PAUSE
FL INDICATOR TUBE
V701 PEL1050
SUB P.C.B assembly PWX1143

TRY1, TSEL, TRY2
µ-com PORT LOGIC

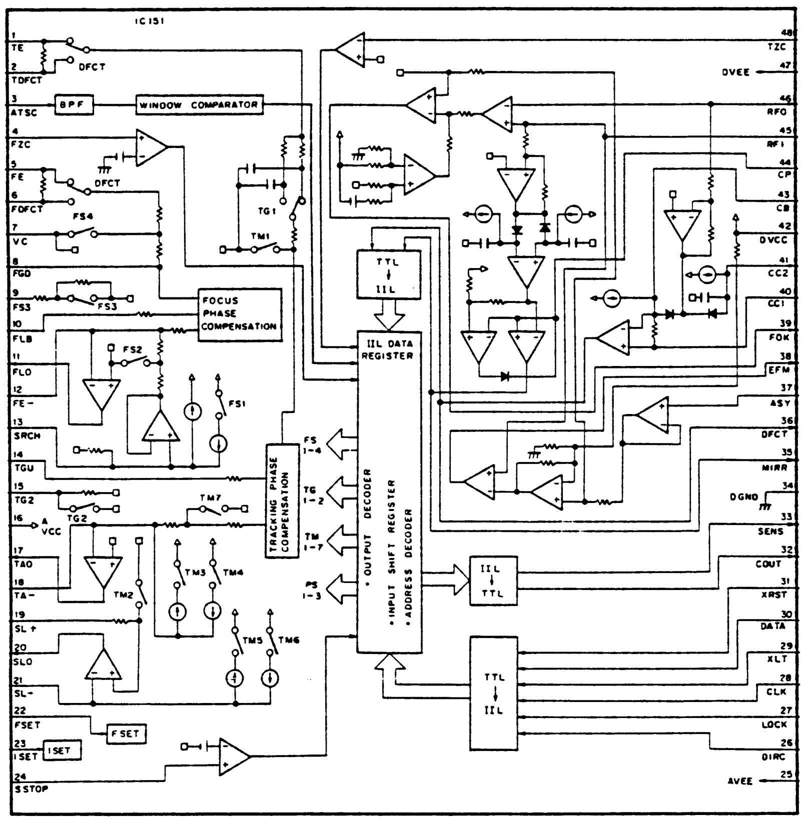
MECHA POSITION: TRAY1	TRAY2	TRAY1	TSEL	TRAY2
OPEN	CLAMP	L	H	L
OPEN/CLOSE	CLAMP	H	H	L
HOME	CLAMP	H	L	L
CHANGE	CHANGE	H	L	H
CHANGE	CHANGE	H	H	H
CLAMP	HOME	L	H	H
CLAMP	OPEN/CLOSE	L	L	H
CLAMP	OPEN	L	L	L


MOTHER P.C.B assembly
PWM1349
TP2
IC301
CXD2500Q
(DECODER)
IC401: DIGITAL FILTER & D/A CONVERTER
IC401
TC9237N
IC404 LOW PASS FILTER
IC404(1/2) NJM4558D-D
IC404(2/2) NJM4558D-D
Q403, Q404: MUTE
2SD2144S
Q405 DTC124ES
Q405: MUTE DRIVE
IC351
PD4305B
(SYSTEM CONTROL)
Q381: BUFFER
2SC1740S
Q382: BUFFER
CN381
To DECK AMPLIFIER BLOCK AF assembly J19 (To page49
Lch
GND
Rch
EN/REQ
DATA
CLK
IC20: SYSTEM RESET & ±5V REGULATOR
IC20
M5298P
Q62: REGULATOR ON/OFF
2SC1740S
D1 11ES2
D2 11ES2
ICP-N10 IC30
CN1 KPE6
To DECK AMPLIFIER BLOCK AF assembly J18 (To page49
V-8
GND
V+8
-26V
AC1
AC2
TEST MODE
NOTES
CAPACITORS µF
M Mylar CQMA
CH Seramic CCCCH
YB Seramic CKCYB
YX Seramic CGCYX
Un Marked Type CKCYF
RESISTORS Ω
1/6W type:
Rating identified where used
VR Ω
VRTB6VS
OTHERS
:Chassis Ground

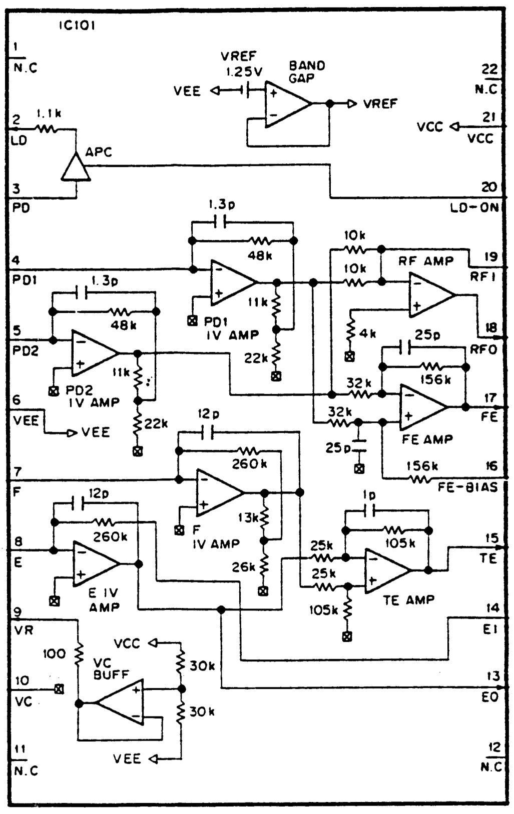
——— : Foucus servo loop
— — — : Signal route
——— : Tracking servo loop
— — — : Carriage servo loop
——— : Loading motor route
— — — : Spindle motor route
▶ : Measurement point

• IC BLOCK

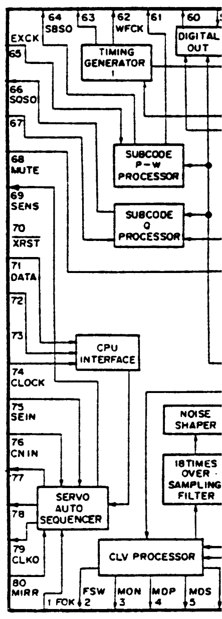
IC151 CXA1372S


IC151
1 TE
2 TDFCT
3 ATSC
4 FZC
5 FE
6 FDFCT
7 VC
8 FGD
9 FS3
10 FLB
11 FLO
12 FE-
13 SRCH
14 TGU
15 TG2
16 VCC
17 TAO
18 TA-
19 SL+
20 SLO
21 SL-
22 FSET
23 ISET
24 SSTOP
48 TZC
47 DVEE
46 RFO
45 RFI
44 CP
43 CB
42 DVCC
41 CC2
40 CC1
39 FOK
38 EFM
37 ASY
36 DFCT
35 MIRR
34 DGND
33 SENS
32 COUT
31 XRST
30 DATA
29 XLT
28 CLK
27 LOCK
26 DIRC
25 AVEE
DFCT
BPF
WINDOW COMPARATOR
FS4
FS3
FS2
FS1
TG1
TM1
TG2
TM2
TM3
TM4
TM5
TM6
TM7
FOCUS PHASE COMPENSATION
TRACKING PHASE COMPENSATION
FSET
ISET
TTL ↓ IIL
IIL DATA REGISTER
• OUTPUT DECODER
• INPUT SHIFT REGISTER
• ADDRESS DECODER
FS 1-4
TG 1-2
TM 1-7
PS 1-3
IIL ↓ TTL

IC101 CXA1471S


IC101
1 N.C
2 LD
3 PD
4 PD1
5 PD2
6 VEE
7 F
8 E
9 VR
10 VC
11 N.C
22 N.C
21 VCC
20 LD-ON
19 RFI
18 RFO
17 FE
16 FE-BIAS
15 TE
14 EI
13 EO
12 N.C
VREF 1.25V
BAND GAP
VEE
VREF
VCC
1.1k
APC
1.3p
48k
11k
22k
PD1 IV AMP
PD2 IV AMP
10k
RF AMP
4k
25p
156k
32k
FE AMP
12p
260k
13k
26k
F IV AMP
E IV AMP
1p
105k
25k
TE AMP
100
VC BUFF
30k

IC301 CXD2500

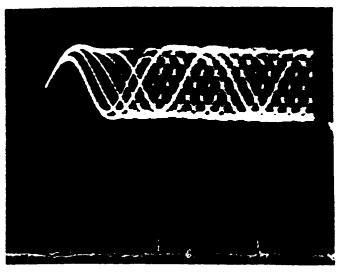

64 SBSO
63
62 WFCK
61
60
EXCK
65
66 SOSO
67
68 MUTE
69 SENS
70 XRST
71 DATA
72
73
74 CLOCK
75 SEIN
76 CNIN
77
78
79 CLKO
80 MIRR
1 FOK
FSW 2
MON 3
MDP 4
MDS 5
DIGITAL OUT
TIMING GENERATOR
SUBCODE P-W PROCESSOR
SUBCODE Q PROCESSOR
CPU INTERFACE
NOISE SHAPER
18TIMES OVER SAMPLING FILTER
SERVO AUTO SEQUENCER
CLV PROCESSOR

Wave Forms

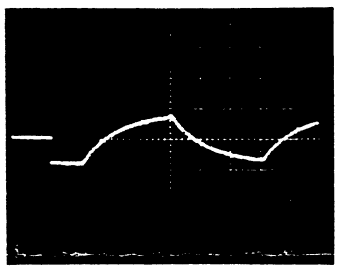
Note: The encircled numbers denote measuring points in the schematic diagram.

*1 50T-JUMP: After switching to the pause mode, press the manual search key.
*2 FOCUS-IN: Press the key without loading a disc.

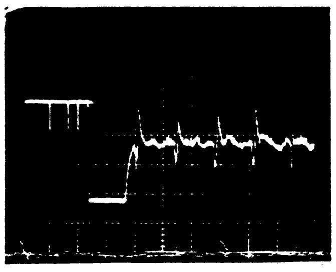
② TP1-Pin 1: PLAY MODE
(RF)
500mV/div 500nsec/div



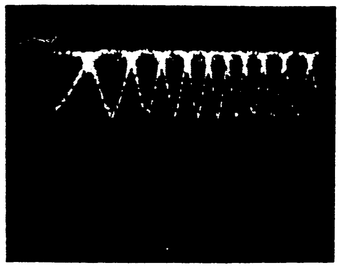
⑤ Q201 Emitter: FOCUS-IN (*2) MODE
(FODR)
1V/div 200msec/div



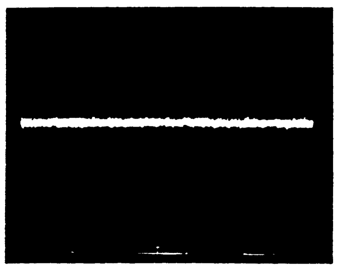
⑦ IC201-Pin 9: TRACK SEARCH MODE
(SPDR)
2V/div 50msec/div



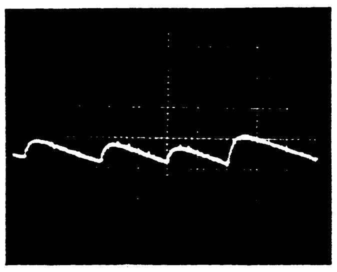
② TP1-Pin 1: TRACK SEARCH MODE
(RF)
500mV/div 200μsec/div



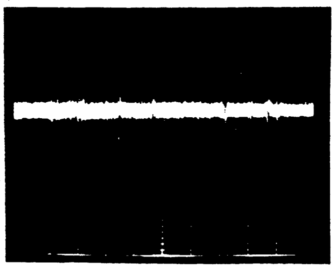
⑤ Q201 Emitter: PLAY MODE
(FODR)
1V/div 1msec/div



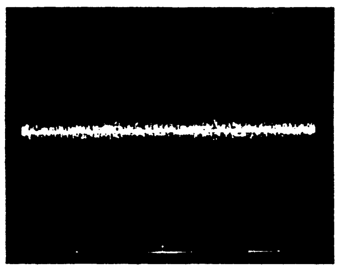
⑧ IC201-Pin 3: PLAY MODE
(CADR)
1V/div 2S/div



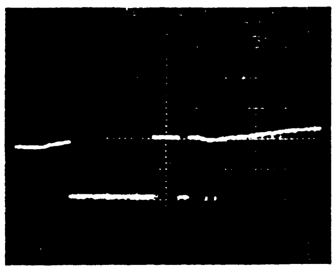
③ TP1-Pin 6: PLAY MODE
(FOER)
100mV/div 10msec/div



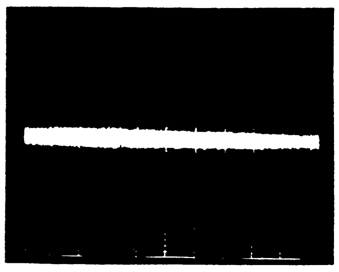
⑥ Q203 Emitter: PLAY MODE
(TRDR)
500mV/div 1msec/div



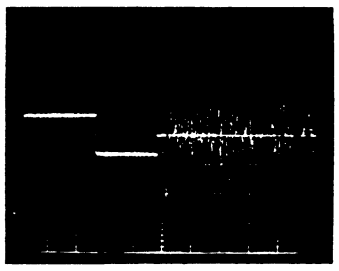
⑧ IC201-Pin 3: TRACK SEARCH MODE
(CADR)
2V/div 200msec/div



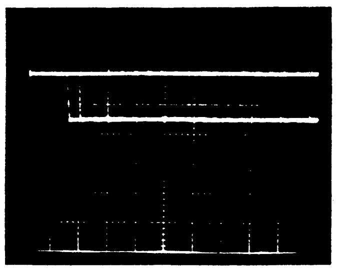
④ TP1-Pin 2: PLAY MODE
(TRER)
1V/div 10msec/div



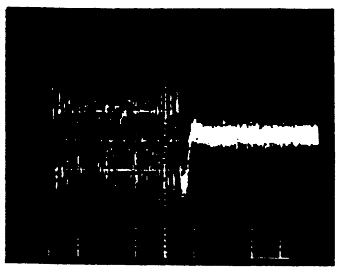
⑥ Q203 Emitter: 50T-JUMP (*1) MODE
(TRDR)
500mV/div 1msec/div



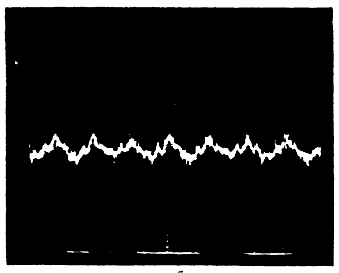
⑨ IC151-Pin 38: PLAY MODE
(EFM)
2V/div 500nsec/div



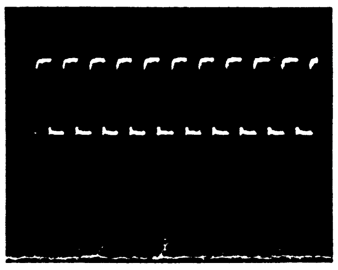
④ TP1-Pin 2: 50T-JUMP (*1) MODE
(TRER)
1V/div 1msec/div



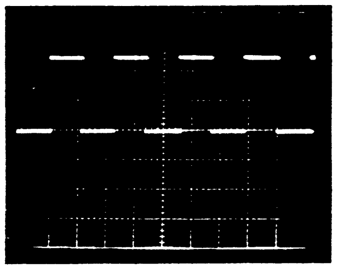
⑦ IC201-Pin 9: PLAY MODE
(SPDR)
1V/div 50msec/div



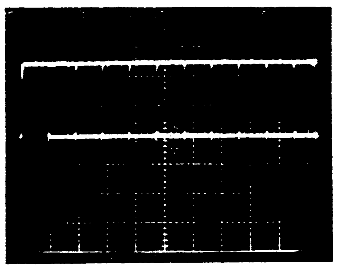
⑯ IC301-Pin 35: PLAY MODE (1kHz)
(BCLK)
2V/div 500nsec/div



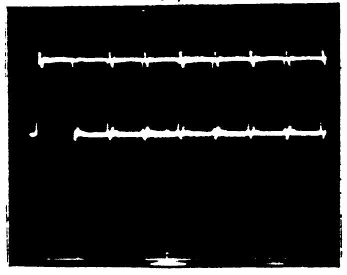
⑱ IC301-Pin 32: PLAY MODE (1kHz)
(LRCK)
2V/div 10μsec/div



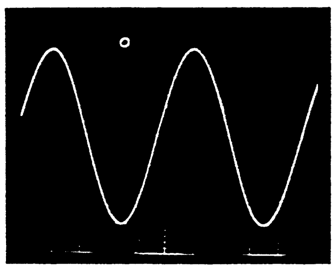
⑲ IC301-Pin 34: PLAY MODE (1kHz)
(DATA)
2V/div 500nsec/div



⑳ IC401-Pin 9, Pin 10
(D/A OUT) : PLAY MODE (1kHz)
2V/div 0.1μsec/div

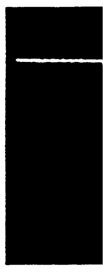


㉑ Pin -OUTPUT: PLAY MODE (1kHz)
1V/div 200μsec/div



㉒ IC2C
(RST
2V/c

㉒ IC2C
(RST
2V/c

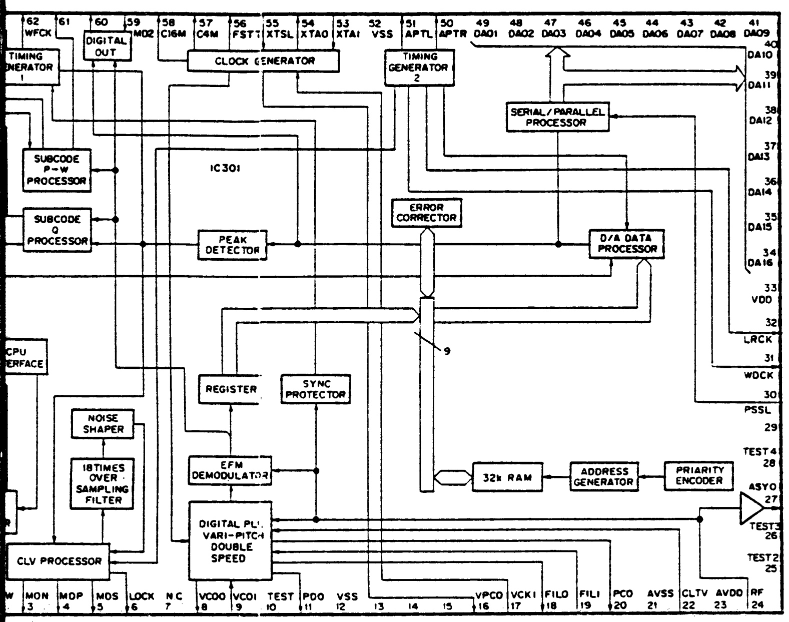


㉓ Upp
Low

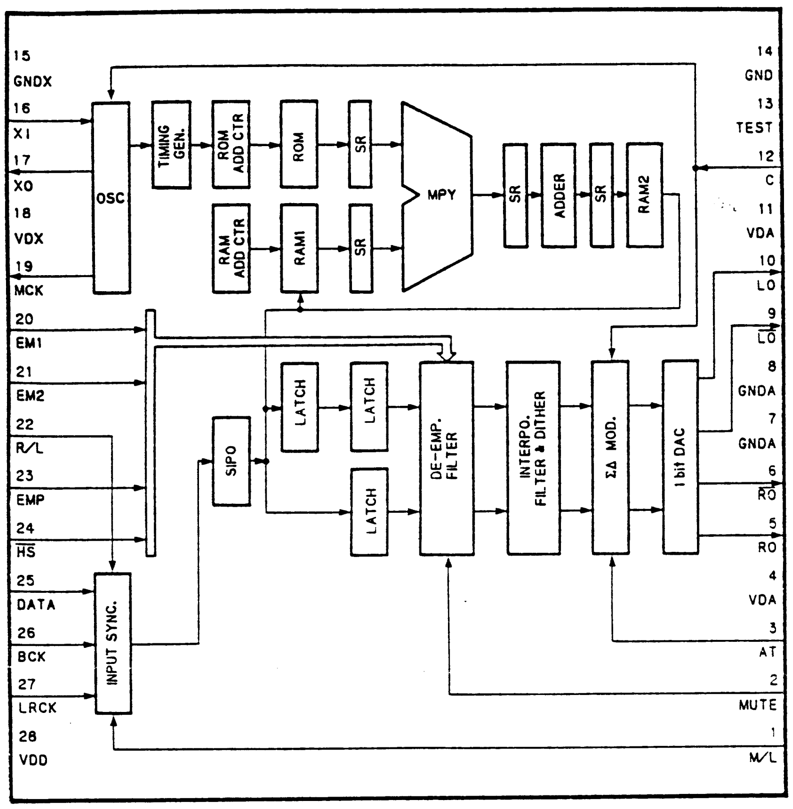
㉔ Upp
Low

㉕

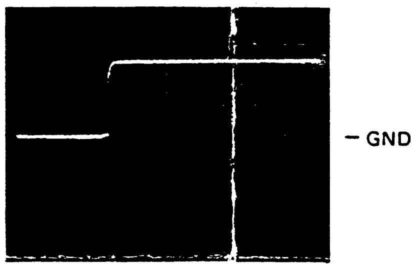
CXD2500Q


62 WFCK
61
60
59 MD2
58 C16M
57 C4M
56 FSTT
55 XTSL
54 XTAO
53 XTAI
52 VSS
51 APTL
50 APTR
49 DAO1
48 DAO2
47 DAO3
46 DAO4
45 DAO5
44 DAO6
43 DAO7
42 DAO8
41 DAO9
40 DA10
39 DA11
38 DA12
37 DA13
36 DA14
35 DA15
34 DA16
33 VDD
32 LRCK
31 WDCK
30 PSSL
29
TEST4 28
ASYO 27
TEST3 26
TEST2 25
MON 3
MDP 4
MDS 5
LOCK 6
N.C 7
VCOO 8
VCOI 9
TEST 10
PDO 11
VSS 12
13
14
15
VPCO 16
VCKI 17
FILO 18
FILI 19
PCO 20
AVSS 21
CLTV 22
AVDD 23
RF 24
TIMING GENERATOR 1
DIGITAL OUT
CLOCK GENERATOR
TIMING GENERATOR 2
SERIAL / PARALLEL PROCESSOR
SUBCODE P-W PROCESSOR
IC301
SUBCODE Q PROCESSOR
PEAK DETECTOR
ERROR CORRECTOR
D/A DATA PROCESSOR
CPU INTERFACE
9
REGISTER
SYNC PROTECTOR
NOISE SHAPER
18TIMES OVER SAMPLING FILTER
EFM DEMODULATOR
32k RAM
ADDRESS GENERATOR
PRIARITY ENCODER
DIGITAL PLL VARI-PITCH DOUBLE SPEED
CLV PROCESSOR

IC401 TC9237N


15 GNDX
16 XI
17 XO
18 VDX
19 MCK
20 EM1
21 EM2
22 R/L
23 EMP
24 HS
25 DATA
26 BCK
27 LRCK
28 VDD
14 GND
13 TEST
12 C
11 VDA
10 LO
9 LO
8 GNDA
7 GNDA
6 RO
5 RO
4 VDA
3 AT
2 MUTE
1 M/L
OSC
TIMING GEN.
ROM ADD CTR
ROM
SR
RAM ADD CTR
RAM1
SR
MPY
SR
ADDER
SR
RAM2
SIPO
LATCH
LATCH
LATCH
DE-EMP. FILTER
INTERPO. FILTER & DITHER
ΣΔ MOD.
1 bit DAC
INPUT SYNC.

㉒ IC20-Pin 9: POWER SWITCH-ON
(RST)
2V/div 100msec div



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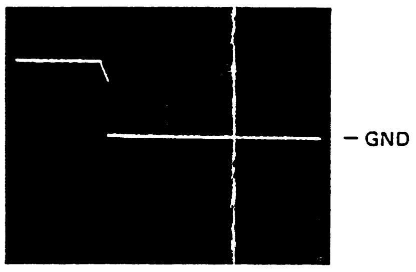
㉒ IC20-Pin 9: POWER SWITCH-OFF
(RST)
2V/div 100msec/div



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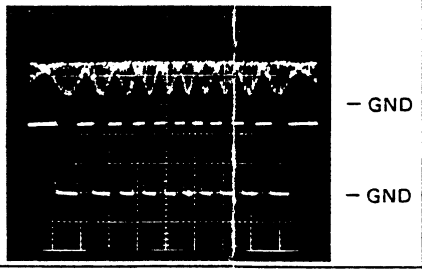
㉓ : TRACK SEARCH MODE
Upper: TP1-Pin 1 (RF) 1V/div
Lower: IC151-Pin 35 (MIRR)
2V/div 200μsec/div



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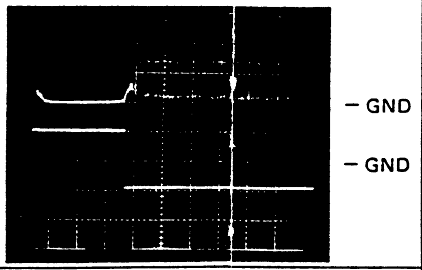
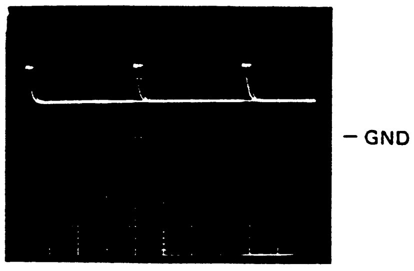
㉔ : PLAY MODE
Upper: TP1-Pin 1 (RF) 1V/div
Lower: IC151-Pin 36 (DFCT)
5V/div 200μsec/div



㉝ IC301-Pin 4: PLAY MODE
(MDP)
2V/div 2μsec/div



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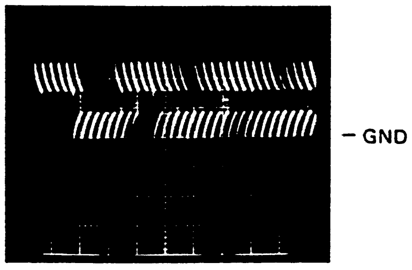
(53) IC301-Pin 20: PLAY MODE
(PCO)
2V/div 10μsec/div



4. P.C.B 's PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10¹ 561..........................RD1/4PS $\boxed{5}$ $\boxed{6}$ $\boxed{1}$ J
47kΩ 47 × 10³ 473..........................RD1/4PS $\boxed{4}$ $\boxed{7}$ $\boxed{3}$ J
0.5Ω 0R5..RN2H $\boxed{0}$ $\boxed{R}$ $\boxed{5}$ K
1Ω 010..RS1P $\boxed{0}$ $\boxed{1}$ $\boxed{0}$ K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621........................RN1/4SR $\boxed{5}$ $\boxed{6}$ $\boxed{2}$ $\boxed{1}$ F

AF assembly (AWZ3336)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC1001	OP-AMP IC	RC4558DXP
	IC151	REGULATOR IC	NJM78M05FA
	IC152	REGULATOR IC	NJM79M05FA
	IC153, 154	REGULATOR IC	UPC7812AHF
	IC155	IC PROTECTOR	ICP-N75
	IC2001	OP-AMP IC	RC4558DXP
	IC2002	LOGIC IC	TC4066BP
	IC2201	OP-AMP IC	RC4558DXP
	IC2202	LOGIC IC	SN74LS05N
	IC2302	DOLBY-B IC	CXA1100P
	IC2451	OP-AMP IC	RC4558DXP
	IC301	AUDIO IC	STK4162-2GP
	IC601	OP-AMP IC	RC4558DXP
	IC801	LOGIC IC	MC14052BCP
	IC802	LOGIC IC	TC4066BP
	IC803, 833	OP-AMP IC	RC4558DXP
	Q2001-2204	TRANSISTOR	2SC2458
	Q2005, 2006	TRANSISTOR	2SC2878
	Q2007	TRANSISTOR	RN2203
	Q2008	TRANSISTOR	RN2201
	Q2009, 2201	TRANSISTOR	RN1201
	Q2202	TRANSISTOR	RN2203
	Q2203, 2204	TRANSISTOR	2SC2878
	Q2301-2304	TRANSISTOR	2SC2458
	Q2351	TRANSISTOR	RN2203
	Q2401	TRANSISTOR	DTC124ES
	Q2402	TRANSISTOR	DTA124ES
	Q2403, 2404	TRANSISTOR	2SC2603
	Q2405	TRANSISTOR	2SA1115
	Q2406	TRANSISTOR	2SC2458
	Q401-403	TRANSISTOR	2SC2458

Mark	No.	Description	Parts No.
	Q404	TRANSISTOR	RN1203
	Q405	TRANSISTOR	2SC2458
	Q406	TRANSISTOR	2SA1048
	Q601	TRANSISTOR	RN2203
	Q602	N-FET	2SK246
	Q801	TRANSISTOR	RN2203
	Q802	TRANSISTOR	RN1203
	Q803	TRANSISTOR	RN2203
	D151	DIODE	D3SBA20 (A)
	D152-159	DIODE	1SR139-400
	D161	ZENER DIODE	RD6.2ESB2
	D162	DIODE	1SS252
	D163-166	DIODE	1SR139-400
	D168, 170	DIODE	1SR139-400
	D2301, 2302	DIODE	1SS252
	D2401	ZENER DIODE	RD6.8ESB
	D2402	DIODE	1SS252
	D2451, 2452	DIODE	1SS252
	D401	ZENER DIODE	RD22EB
	D403	DIODE	1SR139-400
	D404	DIODE	1SS252
	D405	ZENER DIODE	RD6.8ESB2
	D406, 601	DIODE	1SS252

RELAY

Mark	No.	Description	Parts No.
	RY401	RELAY	ASR1035

COILS

Mark	No.	Description	Parts No.
	F2351, 2352	DOLBY FILTER	ATF1064
	L151	AXIAL INDUCTOR	LAU2R2K
	L2201, 2202	INDUCTOR	LTA392J
	L501, 502	COIL	ATH-133

Mark No.	Description	Parts No.
CAPACITORS		
C1001–1004	CERAMIC CAPACITOR	CCCSL101J50
C1005	CERAMIC CAPACITOR	CKSQYB152K50
C1006	CERAMIC CAPACITOR	CKDYB152K50
C1007, 1008	CERAMIC CAPACITOR	CKDYB562K50
C1009–1012	ELECTR.CAPACITOR	CEAS2R2M50
C1015, 1016	ELECTR.CAPACITOR	CEAS470M16
C151, 152	ELECTROLYTIC CAPACIT (3300/50)	ACH1017
C153	ELECTR.CAPACITOR	CEAS222M16
C154	ELECTR.CAPACITOR	CEAS102M16
C155, 156	ELECTR.CAPACITOR	CEAS220M16
C157	ELECTR.CAPACITOR	CEAS222M25
C158, 159	ELECTR.CAPACITOR	CEAS220M25
C160	ELECTR.CAPACITOR	CEAS100M25
C161	CERAMIC CAPACITOR	CKDYB103K500
C162	CKA (0.01/AC250V)	ACG1005
C2007, 2008	MYLOR FILM CAPACITOR	CQMA273J50
C2009, 2010	MYLOR FILM CAPACITOR	CQMA183J50
C2011, 2012	CERAMIC CAPACITOR	CKSQYB152K50
C2201–2204	ELECTR.CAPACITOR	CEAS010M50
C2205, 2206	CHIP CAPACITOR	CKSQYB222K50
C2207, 2208	AUDIO FILM CAPACITOR	CFTXA104J50
C2209, 2210	ELECTR.CAPACITOR	CEAS330M16
C2211, 2212	CERAMIC CAPACITOR	CKCYX183M25
C2213, 2214	MYLOR FILM CAPACITOR	CQMA752J50
C2215, 2216	CERAMIC CAPACITOR	CKSQYB562K50
C2217, 2218	MYLOR FILM CAPACITOR	CQMA273J50
C2221, 2222	ELECTR.CAPACITOR	CEAS2R2M50
C2225, 2226	ELECTR.CAPACITOR	CEAS470M16
C2303, 2304	ELECTR.CAPACITOR	CEAS010M50
C2305	ELECTR.CAPACITOR	CEAS220M16
C2306	ELECTR.CAPACITOR	CEAS220M25
C2351, 2352	ELECTR.CAPACITOR	CEAS100M50
C2353, 2354	ELECTR.CAPACITOR	CEASR22M50
C2355	ELECTR.CAPACITOR	CEAS101M10
C2356–2359	ELECTR.CAPACITOR	CEAS100M50
C2401	ELECTR.CAPACITOR	CEAS331M16
C2402	ELECTR.CAPACITOR	CEAS100M25
C2451	CERAMIC CAPACITOR	CKSQYB473K50
C2452	CERAMIC CAPACITOR	CCSQCH560J50
C2453	ELECTR.CAPACITOR	CEAS010M50
C2454	ELECTR.CAPACITOR	CEAS0R1M50
C301, 302	ELECTR.CAPACITOR	CEAS2R2M50
C303, 304	CERAMIC CAPACITOR	CKMYB331K50
C305, 306	ELECTR.CAPACITOR	CEAS220M50
C307, 308	ELECTR.CAPACITOR	CEAS101M25

Mark No.	Description	Parts No.
C309	ELECTR.CAPACITOR	CEANP220M50
C310	ELECTR.CAPACITOR	CEANP100M50
C311, 312	ELECTR.CAPACITOR	CEAS100M50
C313	ELECTROLYTIC CAPACIT (47/50)	ACH1143
C401–404	CERAMIC CAPACITOR	CKCYF473Z50
C405	ELECTR.CAPACITOR	CEAS221M16
C406	ELECTR.CAPACITOR	CEAS330M25
C407	ELECTR.CAPACITOR	CEAS221M16
C408	ELECTR.CAPACITOR	CEAS100M50
C501	ELECTR.CAPACITOR (10/100)	ACH1144
C601, 602	CERAMIC CAPACITOR	CKMYB471K50
C603, 604	ELECTR.CAPACITOR	CEAS2R2M50
C605	CERAMIC CAPACITOR	CKSQYB681K50
C606	CERAMIC CAPACITOR	CKCYF473Z50
C831, 832	CERAMIC CAPACITOR	CCCSL101J50
C856–858	CERAMIC CAPACITOR	CKDYB471K50
RESISTORS		
VR2201, 2202	VR	VRTB6VS222
R1013	CHIP RESISTOR	RS1/10S104J
R157, 158	CARBON FILM RESISTOR	RD1/2PM8R2J
R159–162	CARBON FILM RESISTOR	RD1/4PM100J
R163, 164	METAL OXIDE RESISTOR	RS2LMFR22J
R2001, 2002	CHIP RESISTOR	RS1/10S103J
R2003, 2004	CHIP RESISTOR	RS1/10S122J
R2005, 2006	CHIP RESISTOR	RS1/10S105J
R2007, 2008	CHIP RESISTOR	RS1/10S332J
R2009, 2010	CHIP RESISTOR	RS1/10S105J
R2011, 2014	CHIP RESISTOR	RS1/10S472J
R2016	CHIP RESISTOR	RS1/10S472J
R2019, 2020	CHIP RESISTOR	RS1/10S154J
R2021, 2022	CHIP RESISTOR	RS1/10S222J
R2207, 2208	CHIP RESISTOR	RS1/10S104J
R2209, 2210	CHIP RESISTOR	RS1/10S683J
R2211, 2212	CHIP RESISTOR	RS1/10S223J
R2213, 2214	CHIP RESISTOR	RS1/10S333J
R2223, 2224	CHIP RESISTOR	RS1/10S471J
R2226	CHIP RESISTOR	RS1/10S681J
R2233, 2234	CHIP RESISTOR	RS1/10S102J
R2301, 2302	CHIP RESISTOR	RS1/10S273J
R2303, 2304	CHIP RESISTOR	RS1/10S362J
R2305, 2306	CHIP RESISTOR	RS1/10S103J
R2317, 2318	CHIP RESISTOR	RS1/10S222J
R2351, 2352	CHIP RESISTOR	RS1/10S242J
R2355, 2356	CHIP RESISTOR	RS1/10S682J
R2357	CHIP RESISTOR	RS1/10S433J
R2361, 2362	CHIP RESISTOR	RS1/10S222J
R2363, 2364	CHIP RESISTOR	RS1/10S273J
R2366	CHIP RESISTOR	RS1/10S103J

Mark	No.	Description	Parts No.
	R2451	CHIP RESISTOR	RS1/10S224J
	R2452	CHIP RESISTOR	RS1/10S154J
	R2454	CHIP RESISTOR	RS1/10S223J
	R2457	CHIP RESISTOR	RS1/10S123J
	R305, 306	CARBON FILM RESISTOR	RD1/4PM104J
	R309－312	CARBON FILM RESISTOR	RD1/4PM222J
	R313	CARBON FILM RESISTOR	RD1/4PMFL471J
	R314	CARBON FILM RESISTOR	RD1/4PMFL101J
	R315	CARBON FILM RESISTOR	RD1/4PM102J
	R316, 317	CARBON FILM RESISTOR	RD1/4PMFL222J
	R318	CARBON FILM RESISTOR	RD1/4PMFL101J
	R401, 402	CARBON FILM RESISTOR	RD1/4PM100J
	R409	CARBON FILM RESISTOR	RD1/2PM182J
	R416	METAL OXIDE RESISTOR	RS2LMF331J
	R417	METAL OXIDE RESISTOR	RS2LMF391J
	R501, 502	CARBON FILM RESISTOR	RD1/4PMFL100J
	R805, 806	CHIP RESISTOR	RS1/10S273J
	R843, 844	CHIP RESISTOR	RS1/10S223J
	R855, 856	CHIP RESISTOR	RS1/10S332J
	R857	CHIP RESISTOR	RS1/10S104J
	R858	CHIP RESISTOR	RS1/10S000J
		Other resistors	RD1/8PM□□□J

OTHERS

Mark	No.	Description	Parts No.
	CN10	CONNECTOR (14P)	KPE14
	CN11	CONNECTOR (15P)	KPE15
	CN12	CONNECTOR (13P)	KPE13
	CN16	CONNECTOR (7P)	KPE7
	CN4	CONNECTOR (13P)	KPE13
	CN5	CONNECTOR (5P)	KPE5
	CN6	CONNECTOR (4P)	KPC4
		PIN JACK (4P)	AKB1124
		PIN JACK (2P)	AKB1146
		SPEAKER TERMINAL 4－P	AKE－109
		JACK	AKN－203
		SOCKET (14P)	AKP1048
		GEQ assembly	AWX1048

⊙ GEQ assembly (AWX1048)

The GEQ assembly (AWX1048) is a part of AF assembly (AWZ3336).

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC701, 702	GEQ IC	LA3607
	IC703	GEQ EVR IC	LC7522

CAPACITORS

Mark	No.	Description	Parts No.
	C701, 702	CERAMIC CAPACITOR	CCSQSL331J50
	C703－706	ELECTR.CAPACITOR	CEAS2R2M50
	C707, 708	ELECTROLYTIC CAPACIT	CEASR15M50
	C709, 710	ELECTR.CAPACITOR	CEASR47M50
	C711, 712	CERAMIC CAPACITOR	CKCYX683M16
	C713, 714	ELECTROLYTIC CAPACIT	CEASR15M50
	C715, 716	CERAMIC CAPACITOR	CKCYX273M16
	C717, 718	CERAMIC CAPACITOR	CKCYX683M16
	C719, 720	CERAMIC CAPACITOR	CKSQYB103K50
	C721, 722	CERAMIC CAPACITOR	CKCYX273M16
	C723, 724	CERAMIC CAPACITOR	CKSQYB472K50
	C725, 726	CERAMIC CAPACITOR	CKSQYB103K50
	C727, 728	CERAMIC CAPACITOR	CKSQYB182K50
	C729, 730	CERAMIC CAPACITOR	CKSQYB472K50
	C731, 732	CERAMIC CAPACITOR	CKSQYB681K50
	C733, 734	CERAMIC CAPACITOR	CKSQYB182K50
	C735, 736	ELECTR.CAPACITOR	CEAS101M10
	C737, 738	CERAMIC CAPACITOR	CKSQYB473K50

RESISTORS

Mark	No.	Description	Parts No.
	R701	CARBONFILM RESISTOR	RD1/8PM103J
	R703, 704	CARBONFILM RESISTOR	RD1/8PM223J
	R710	RESISTOR ARRAY (1M)	RA8T105J
	R711, 712	CARBON FILM RESISTOR	RD1/4PM390J
	R726, 727	CARBONFILM RESISTOR	RD1/8PM103J
		Other resistors	RS1/10S□□□J

VR assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC551	OP－AMP IC	RC4558DXP
	IC552	MECHANISM DRIVER IC	TA7291S
	Q551, 552	TRANSISTOR	2SC2878
	Q553	TRANSISTOR	RN1203

Mark	No.	Description	Parts No.
	CAPACITORS		
	C551, 552	ELECTR.CAPACITOR	CEAS4R7M50
	C553, 554	CHIP CAPACITOR	CCSQCH101J50
	C555, 556	ELECTR.CAPACITOR	CEAS101M16
	C557	ELECTR.CAPACITOR	CEAS220M25
	C558	CERAMIC CAPACITOR	CKSQYF104Z50
	C559	CERAMIC CAPACITOR	CKCYF473Z50
	RESISTORS		
	VR551	VARIABLE RESISTOR	ACX1051
	R554	CHIP RESISTOR	RS1/10S000J
	R555, 556	CHIP RESISTOR	RS1/10S104J
	R561	CHIP RESISTOR	RS1/10S000J
	R565, 566	CHIP RESISTOR	RS1/10S102J
		Other resistors	RD1/8PM□□□J

HEAD PHONE assembly

	CAPACITOR		
	C453	CERAMIC CAPACITOR	CKDYF473Z50
	RESISTORS		
	R451, 452	METAL OXIDE RESISTOR	RS2LMF331J
	R453	CARBONFILM RESISTOR	RD1/8PM100J
	OTHERS		
		JACK (HEAD PHONE)	AKN1010
	CN1	CONNECTOR (5P)	KPC5

TRANS CONNECT assembly

No parts are supplied with the TRANS CONNECT assembly.

⊙ DISPLAY assembly (AWZ3351)

Mark	No.	Description	Parts No.
	SEMICONDUCTORS		
	IC1501	LOGIC IC	SN74LS05N
	IC1502	LOGIC IC	SN74LS03N
	IC1503	GEQ-BPF IC	BA3826S
	IC1504	OP-AMP IC	RC4558DXP
	IC1505	SPECTRUM ANALYZER CONTROL μ-COM	PD3174A
	IC1651	SYSTEM CONTROL μ-COM	PD5147B
	IC1652	RESET IC	M51951BSL
	Q1501-1504	TRANSISTOR	RN1201
	Q1505-1507	TRANSISTOR	RN1203
	Q1508, 1509	TRANSISTOR	RN2201
	Q1510	TRANSISTOR	RN1203
	Q1601	TRANSISTOR	RN2204
	Q1602	TRANSISTOR	RN1203
	Q1603	TRANSISTOR	RN2204
	Q1604	TRANSISTOR	2SA1515
	Q1605	TRANSISTOR	RN1203
	Q1606	TRANSISTOR	2SA1515
	Q1607	TRANSISTOR	RN1203
	Q1608	TRANSISTOR	2SA1515
	Q1609	TRANSISTOR	RN1203
	Q1610	TRANSISTOR	2SA1515
	Q1611	TRANSISTOR	RN1203
	D1501-1504	LED (GREEN)	AEL1130
	D1505	LED (RED)	AEL1119
	D1506, 1507	LED (RED)	AEL1126
	D1508, 1509	LED	AEL1128
	D1510	LED (RED)	AEL1065
	D1511-1516	LED (RED)	AEL1108
	D1517-1531	DIODE	1SS252
	D1535-1543	DIODE	1SS252
	D1544, 1545	LED (GREEN)	AEL1129
	D1546	LED (RED)	AEL1065
	D1547, 1548	DIODE	1SS252
	D1601-1617	DIODE	1SS252
	D1651-1664	DIODE	1SS252
	SWITCHES		
	S1504-1507	SWITCH	ASG1034
	S1510-1514	SWITCH	ASG1034
	S1516-1519	SWITCH	ASG1034
	S1522-1525	SWITCH	ASG1034
	S1528	SWITCH	ASD1012
	S1529	ROTARY ENCODER	ASX1009
	S1530-1535	SWITCH	ASG1034
	S1537-1544	SWITCH	ASG1034
	S1546-1549	SWITCH	ASG1034
	COILS		
	L1501	AXIAL INDUCTOR	LAU221K
	L1651	AXIAL INDUCTOR	LAU220K
	CAPACITORS		
	C1501	CERAMIC CAPACITOR	CKDYX473M16
	C1504	ELECTR.CAPACITOR	CEJA470M10
	C1505	CEA (47000/5.5V)	ACH1070
	C1506	CERAMIC CAPACITOR (0.022)	ACG1022
	C1507	CERAMIC CAPACITOR	CCDSL100D50

Mark No.	Description	Parts No.
C1508	CERAMIC CAPACITOR	ACG1022
C1509	CERAMIC CAPACITOR	CKMYB102K50
C1510	CERAMIC CAPACITOR	CKDYX473M16
C1601	ELECTR.CAPACITOR	CEAS470M10
C1602	ELECTR.CAPACITOR	CEASR33M50
C1651	CERAMIC CAPACITOR	CKCYF473Z50
C1652	ELECTR.CAPACITOR	CEAS101M16
C1653	CERAMIC CAPACITOR	CKCYF473Z50
C1654 – 1658	CERAMIC CAPACITOR (1000p)	ACG1020
C1659	ELECTR.CAPACITOR	CEAS010M50

RESISTORS

VR1601, 1602	VR	VRTM6V203
VR1603	VR	VRTM6V103
R1543	RESISTOR ARRAY (100k)	RA13S104J
R1544	RESISTOR ARRAY (100k)	RA15T104J
R1662	RESISTOR ARRAY (3.3K)	RA8T332J
	Other resistors	RD1/8PM□□□J

OTHERS

V1501	FL TUBE	AAV1116
X1502	CERAMIC RESONATOR	ASS1018
X1651	CERAMIC RESONATOR	ASS1025
	REMOTE RECEIVER UNIT	AXX1010
CN8	CONNECTOR (15P)	KPE15

1 MECHA SW assembly

SWITCHES

S1551 – 1555	SWITCH	ASG1034

2 MECHA SW assembly

SWITCHES

S1556 – 1560	SWITCH	ASG1034

MIC BALANCE assembly

SEMICONDUCTORS

IC901	OP – AMP IC	NJM4558S – X

CAPACITORS

C901	CERAMIC CAPACITOR	CKMYB681K50
C902	ELECTR.CAPACITOR	CEAS010M50
C903	CERAMIC CAPACITOR	CKMYB471K50
C904, 905	ELECTR.CAPACITOR	CEAS100M25
C906, 907	CERAMIC CAPACITOR	CKDYX473M16
C908	CERAMIC CAPACITOR	CKDYF473Z50

RESISTORS

VR552	VARIABLE RESISTOR	ACS1066
VR901	VARIABLE (10K – X1)	ACS1065
	Other resistors	RD1/8PM□□□J

OTHERS

CN3	JUMPER CONNECTOR	KPC6
	JACK (MIC)	AKN1017

⊙ SUB TRANS assembly (AWR1056)

SEMICONDUCTORS

IC101	REGULATOR IC	NJM78M56FA
IC102	REGULATOR IC	UPC78M12AHF
Q101	TRANSISTOR	2SC2458
Q102	TRANSISTOR	2SB560
D101	ZENER DIODE	RD10ESB2
D102	ZENER DIODE	RD30ESB2
D103 – 106	DIODE	1SR139 – 400
D107, 109	DIODE	1SS252

RELAY

RY101	RELAY	ASR1027

TRANSFORMER

T101	POWER TRANSFORMER	ATT1149

CAPACITORS

C101	ELECTR.CAPACITOR	CEAS222M25
C102	ELECTR.CAPACITOR	CEAS221M50
C103, 104	ELECTR.CAPACITOR	CEAS470M16
C105	ELECTR.CAPACITOR	CEAS470M50
C106	ELECTR.CAPACITOR	CEAS220M50
C107	ELECTR.CAPACITOR	CEAS470M16

RESISTORS

R101	METAL OXIDE RESISTOR	RS3LMF392J
	Other resistors	RD1/8PM□□□J

1 MECHA assembly

CAPACITORS

Mark	No.	Description	Parts No.
	C2001, 2002	CERAMIC CAPACITOR	CKMYB391K50
	C2005, 2006	AUDIO FILM CAPACITOR	CFTXA223J50
	C2007, 2008	ELECTR.CAPACITOR	CEAS4R7M50
	C2009, 2010	ELECTR.CAPACITOR	CEAS470M10

RESISTORS

Mark	No.	Description	Parts No.
	VR2001, 2002	VR	VRTM6H202
		Other resistors	RD1/8PM□□□J

2 MECHA assembly

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC2001, 2021	OP−AMP IC	RC4558DXP
	Q2021, 2022	N−FET	2SK373
	Q2251	TRANSISTOR	RN1201
	Q2252	TRANSISTOR	2SA1515
	Q2253, 2254	TRANSISTOR	2SC3377
	Q2255	TRANSISTOR	2SC2458
	D2021−2026	DIODE	1SS252

COILS & TRANSFORMERS

Mark	No.	Description	Parts No.
	L2204, 2205	INDUCTOR	LTA822J
	T2251	OSC TRANSFORMER	ATX−043

CAPACITORS

Mark	No.	Description	Parts No.
	C2021, 2022	CERAMIC CAPACITOR	CCMSL100D50
	C2023, 2024	CERAMIC CAPACITOR	CKMYB391K50
	C2027, 2028	AUDIO FILM CAPACITOR	CFTXA223J50
	C2029, 2030	ELECTR.CAPACITOR	CEAS4R7M50
	C2031, 2032	ELECTR.CAPACITOR	CEAS470M10
	C2219, 2220	CERAMIC CAPACITOR	CCDSL271K500
	C2223, 2224	CERAMIC CAPACITOR	CKDYB681K50
	C2251	ELECTR.CAPACITOR	CEAS470M16
	C2252, 2253	CERAMIC CAPACITOR	CGMYX103M16
	C2254	CERAMIC CAPACITOR	CKMYB221K50
	C2255	MYLOR FILM CAPACITOR	CQMA153K50
	C2256	CERAMIC CAPACITOR	CKMYB681K50
	C2257	MYLOR FILM CAPACITOR	CQMA123K250
	C2258	ELECTR.CAPACITOR	CEAS4R7M50
	C2259, 2260	CERAMIC CAPACITOR	CCCSL101K500
	C2261	MYLOR FILM CAPACITOR	CQMA562K400
	C2262	CQPA (2000P/630V)	ACE1020
	C2263	ELECTR.CAPACITOR	CEAS100M50

RESISTORS

Mark	No.	Description	Parts No.
	VR2021, 2022	VR	VRTM6V202
	VR2251, 2252	VR	VRTM6H204
	R2253	CARBON FILM RESISTOR	RD1/2PM360J
		Other resistors	RD1/8PM□□□J

⊙ MOTHER P.C.B ASSEMBLY (PWM1349)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC101	PRE AMP IC	CXA1471S
	IC151	SERVO IC	CXA1372S
⚠	IC20	REGULATOR IC	M5298P
⚠	IC201	POWER OP−AMP, IC	LA6520
⚠	IC30	IC PROTECTOR	ICP−N10
	IC301	EFM DEMODULATION IC	CXD2500Q
	IC351	MICROCOMPUTER	PD4305B
	IC401	8FS DF DA CONVERTER IC	TC9237N
	IC404	OP−AMP IC	NJM4558D−D
	Q101	TRANSISTOR	2SA854S
	Q201	TRANSISTOR	2SC3581
	Q202	TRANSISTOR	2SA1399
	Q203	TRANSISTOR	2SC3581
	Q204	TRANSISTOR	2SA1399
	Q381, 382	TRANSISTOR	2SC1740S
	Q403, 404	TRANSISTOR	2SD2144S
	Q405	TRANSISTOR	DTC124ES
	Q62	TRANSISTOR	2SC1740S
⚠	D1, 2	DIODE	11ES2
	D211	ZENNER DIODE	MTZJ6.2B/C
	D381−385	DIODE	1SS254

COILS

Mark	No.	Description	Parts No.
	L381	AXIAL INDUCTOR	LAU010K
	L401	AXIAL COIL	LAUR22K
	L402, 403	AXIAL INDUCTOR	LAU010K

CAPACITORS

Mark	No.	Description	Parts No.
	C101	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C102	ELECTR.CAPACITOR	CEAS101M10
	C103	CERAMIC CAPACITOR	CCCCH180J50
	C104	ELECTR.CAPACITOR	CEAS101M10
	C11, 110	CERAMIC CAPACITOR	CKCYF103Z50
	C12−14	CERAMIC CAPACITOR	CKCYF103Z50
	C153	ELECTR.CAPACITOR	CEAS101M10
	C155	MYLOR FILM CAPACITOR	CQMA182J50
	C156	MYLOR FILM CAPACITOR	CQMA333K50

Mark	No.	Description	Parts No.
	C157	MYLOR FILM CAPACITOR	CQMA103K50
	C158, 159	MYLOR FILM CAPACITOR	CQMA104K50
	C160	ELECTR.CAPACITOR	CEAS4R7M50
	C161	MYLOR FILM CAPACITOR	CQMA104K50
	C162	ELECTR.CAPACITOR	CEAS010M50
	C163	MYLOR FILM CAPACITOR	CQMA104K50
	C164	MYLOR FILM CAPACITOR	CQMA103K50
	C167	CERAMIC CAPACITOR	CKCYF103Z50
	C168	MYLOR FILM CAPACITOR	CQMA333K50
	C169	MYLOR FILM CAPACITOR	CQMA103K50
	C170	MYLOR FILM CAPACITOR	CQMA332J50
	C171	MYLOR FILM CAPACITOR	CQMA472J50
	C172	MYLOR FILM CAPACITOR	CQMA472K50
	C202	CERAMIC CAPACITOR	CKCYF103Z50
	C212	MYLOR FILM CAPACITOR	CQMA103K50
	C216, 217	ELECTR.CAPACITOR	CEAS330M16
	C27	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C28	ELECTR.CAPACITOR	CEAS101M10
	C301	MYLOR FILM CAPACITOR	CQMA104K50
	C306	CERAMIC CAPACITOR	CKCYB152K50
	C307	MYLOR FILM CAPACITOR	CQMA473J50
	C308	MYLOR FILM CAPACITOR	CQMA103K50
	C309	ELECTR.CAPACITOR	CEASR47M50
	C351	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C353, 355	CERAMIC CAPACITOR	CKCYF103Z50
	C361	CERAMIC CAPACITOR	CKCYF103Z50
	C383, 384	CERAMIC CAPACITOR	CKCYF103Z50
	C401	CERAMIC CAPACITOR	CKCYF103Z50
	C403, 404	CERAMIC CAPACITOR	CCCCH470J50
	C410, 411	CERAMIC CAPACITOR	CCCSL560J50
	C412–415	CERAMIC CAPACITOR	CCCCH390J50
	C420	ELECTR.CAPACITOR	CEAS330M16
	C421	CERAMIC CAPACITOR	CKCYF473Z50
	C422	CERAMIC CAPACITOR	CKCYF103Z50
	C429, 430	ELECTR.CAPACITOR	CEAS220M25
	C431, 432	MYLOR FILM CAPACITOR	CQMA104K50
	C433, 434	MYLOR FILM CAPACITOR	CQMA103K50
	C435	CERAMIC CAPACITOR	CKCYF103Z50
	C60	ELECTR.CAPACITOR	CEAS010M50

RESISTORS

Mark	No.	Description	Parts No.
	VR102	VR	RCP1046
	VR103	VR	RCP1044
	VR151, 152	VR	RCP1046
		Other resistors	RD1/6PM☐☐☐J

OTHERS

Mark	No.	Description	Parts No.
	CN1	CONNECTOR (6P)	KPE6
	CN101	CONNECTOR	52045–1610
	CN351	CONNECTOR	HLEM30S–1
	CN381	CONNECTOR (7P)	KPE7
	X351	CERAMIC RESONATOR	VSS1014
	X401	XTAL RES (OSC)	PSS1006

⊙ SUB P.C.B ASSEMBLY (PWX1143)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	D701–704	DIODE	1SS254
	D708	DIODE	1SS254

SWITCHES

Mark	No.	Description	Parts No.
	S701–716	SWITCH	PSG1006

OTHERS

Mark	No.	Description	Parts No.
	CN701	CONNECTOR	HLEM30R-1
	V701	FL INDICATOR TUBE	PEL1050

MECHA P.C.B ASSEMBLY

SWITCHES

Mark	No.	Description	Parts No.
	S601–603	SWITCH	DSG1017

5. IC INFORMATION

• PD3174A

• Pin Function

No.	Pin name	I/O	Description
1	S5/KO5	DP	FL SEGMENT Output (S5), KEY SCAN Output (KO5)
2	S4/KO4	DP	FL SEGMENT Output (S4), KEY SCAN Output (KO4)
3	S3/KO3	DP	FL SEGMENT Output (S3), KEY SCAN Output (KO3)
4	S2/KO2	DP	FL SEGMENT Output (S2), KEY SCAN Output (KO2)
5	S1/KO1	DP	FL SEGMENT Output (S1), KEY SCAN Output (KO1)
6	1G	DP	FL DIGIT Output (1G)
7	2G	DP	FL DIGIT Output (2G)
8	3G	DP	FL DIGIT Output (3G)
9	4G	DP	FL DIGIT Output (4G)
10	5G	DP	FL DIGIT Output (5G)
11	6G	DP	FL DIGIT Output (6G)
12	7G	DP	FL DIGIT Output (7G)
13	8G	DP	FL DIGIT Output (8G)
14	9G	DP	FL DIGIT Output (9G)
15	10G	DP	FL DIGIT Output (10G)
16	11G	DP	FL DIGIT Output (11G)
17	12G	DP	FL DIGIT Output (12G)
18	POWER	I	When AC power supply ceases, the backup mode is activated.
19	−27V	I	Vfdp (−27V)
20	13G	DP	FL DIGIT Output (13G)
21	14G/ MODE 1	DP	FL DIGIT Output (14G)
22	15G/ MODE 2	DP	FL DIGIT Output (15G)
23	N.C.	DP	Not used
24	DEL 1	O	Not used
25	DEL 2	O	Not used
26	DEL 3	O	Not used
27	DATA	O	LC7522 DATA Output
28	CLOCK	O	LC7522 CLOCK Output
29	S. DATA	I	SYSTEM BUS DATA Input
		O	SYSTEM BUS DATA Output
30	S. CLOCK	I	SYSTEM BUS CLOCK Input
31	REQ/EN	I	SYSTEM BUS TALKER ENABLE Input
		O	SYSTEM BUS TAKER REQUEST Output
32	Vcc		Connected to Power supply (+5V)
33	CTR	O	BA3826 L/R Switching Output
34	A	O	BA3826 A Output
35	B	O	BA3826 B Output
36	C	O	BA3826 C Output
37	DA0	O	A/D Converter Output
38	DA1	O	A/D Converter Output
39	DA2	O	A/D Converter Output
40	DA3	O	A/D Converter Output
41	DA4	O	A/D Converter Output
42	CMP IN	I	A/D converter Input
43	KI1	I	KEY SCAN Input
44	KI2	I	KEY SCAN Input
45	ENC B	I	Rotary pulse encoder B Input
46	ENC A	I	Rotary pulse encoder A Input

No.	Pin name	I/O	Description
47	RESET	I/O	RESET Input
48	OSC 2	O	Connected to ceramic oscilator (4.19MHz).
49	OSC 1	I	
50	GND		GND
51	CL 1	I	Not used (+5V)
52	CL 2	O	Not used (OPEN)
53	TEST	I	Not used (+5V)
54	S16	DP	FL SEGMENT Output (S16)
55	S15	DP	FL SEGMENT Output (S15)
56	S14	DP	FL SEGMENT Output (S14)
57	S13	DP	FL SEGMENT Output (S13)
58	S12	DP	FL SEGMENT Output (S12)
59	S11	DP	FL SEGMENT Output (S11)
60	S10/K10	DP	FL SEGMENT Output (S10), KEY SCAN Output (K10)
61	S9/K09	DP	FL SEGMENT Output (S9), KEY SCAN Output (K09)
62	S8/K08	DP	FL SEGMENT Output (S8), KEY SCAN Output (K08)
63	S7/K07	DP	FL SEGMENT Output (S7), KEY SCAN Output (K07)
64	S6/K06	DP	FL SEGMENT Output (S6), KEY SCAN Output (K06)

I : CMOS input
O : CMOS output
N : N ch open drain output
P : P ch open drain output
UN : N ch open drain output with pull−up resistor
DP : P ch open drain output with pull−down resistor
UI : CMOS input with pull−up resistor
DI : CMOS input with pull−down resistor

6. FOR HEWZIW TYPE

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

6.1 CONTRAST OF MISCELLANEOUS PARTS

The XD−Z84T/HEWZIW type is the same as the XD−Z84T/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZIW type	
	AF assembly	AWZ3336	AWZ3337	
	VR assembly	Non supply	Non supply	
	HEAD PHONE assembly	Non supply	Non supply	
	MIC BALANCE assembly	Non supply	Non supply	
	SUB TRANS assembly	AWR1056	AWR1057	
	Screw (EARTH)	....	ABA1047	
	Operating instructions (Duch, Swedish, Spanish, Portuguese)	ARC1242	....	
	Operating instructions (English, German, French, Italian)	ARE1173	....	
	Operating instructions (German, Italian)	....	ARC1236	

6.2 VR assembly (HEWZIW type)

The VR assembly (HEWZIW type) is the same as the VR assembly (HE type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZIW type	
	C561, C562	....	CKMYB221K50	

6.3 SUB TRANS assembly (AWR1057)

The SUB TRANS assembly (AWR1057) is the same as the SUB TRANS assembly (AWR1056) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZIW type	
	L101	....	ATF−151	
⚠	T101 Power transformer	ATT1149	ATT1144	
	C109 (0.01μF/AC400V)	....	ACG1002	

6.4 AF assembly (AWZ3337)

The AF assembly (AWZ3337) is the same as the AF assembly (AWZ3336) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ3336	AWZ3337	
	L501, L502	ATH−133	ATH−059	
	L503, L504	....	ATH−059	
	C162 (0.01μF/AC250V)	ACG1005	....	
	C162	....	CQMA473K250	
	C321, C322	....	CCDCH101J50	
	C502, C503, C513, C514	....	CKDYB103K50	
	C511, C512	....	CKDYB102K50	
	C607, C608	....	CCMSL101J50	
	C801−C804 (390p)	....	ACG1026	
	C805−C808	....	CKMYB391K50	
	C831, C832, C1003, C1004	CCCSL101J50	CCMSL101J50	
	C851−C853, C855	....	CKDYF473Z50	
	C854	....	CQMA224K50	
	C856−C858	CKDYB471K50	CKMYB471K50	
	C1001, C1002	CCMSL101J50	CKMYB391K50	
	C1013, C1014	....	CKDYB471K50	
	R351, R352	....	RD1/8PM222J	
	R501, R502	RD1/4PMFL100J	RD1/4PMFL101J	
	R807, R808	....	RD1/8PM221J	
	R1001, R1002	RD1/8PM102J	RD1/8PM222J	

6.5 HEAD PHONE assembly (HEWZIW type)

The HEAD PHONE assembly (HEWZIW type) is the same as the HEAD PHONE assembly (HE type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		.HE type	HEWZIW type	
	C451, C452	....	CKDYF473Z50	
	C453	CKDYF473Z50	....	
	R453	RD1/8PM100J	....	

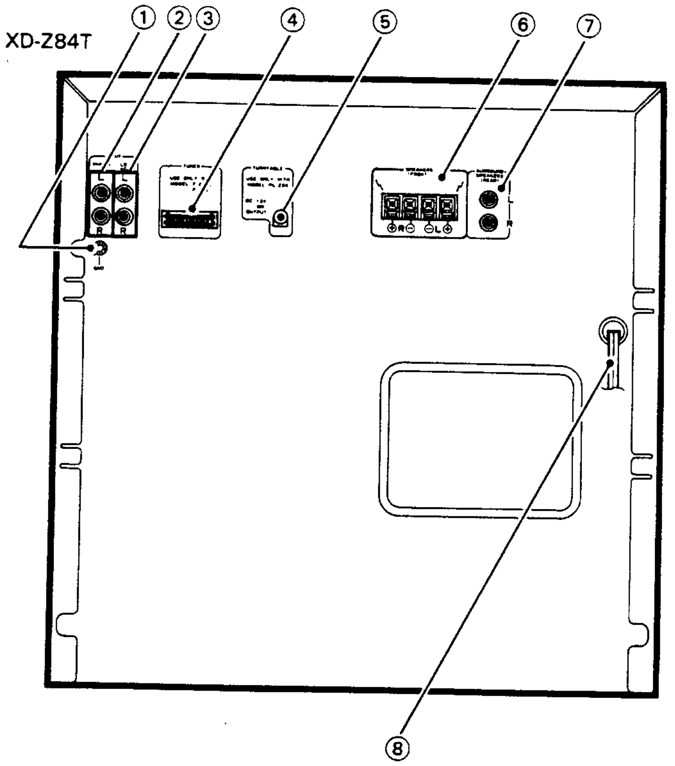
6.6 MIC BALANCE assembly (HEWZIW type)

The MIC BALANCE assembly (HEWZIW type) is the same as the MIC BALANCE assembly (HE type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZIW type	
	C909, C910	....	CCDSL101J50	
	C911, C912	....	CKDYB102K50	
	C913	....	CKDYB472K50	
	R909	....	RD1/8PM222J	
	R910	....	RD1/8PM100J	

7. PANEL FACILITIES

REAR PANEL FACILITIES



① Ground terminal (GND)

Connect this to the ground terminal on the turntable (except for PL-Z94).

② PHONO input jacks

Connect the audio cord of the turntable to these jacks.

③ LD/VCR jacks

Connect to audio output jacks of LD player or VCR, etc.

④ TUNER jacks

Connect the tuner cord here.

⑤ TURNTABLE (DC 12 V OUTPUT) jack

This jack supplies power to the turntable PL-Z94.
Connect the power supply cord of the turntable to this jack.

⑥ SPEAKERS terminals

L: Connect the left speaker system as seen from the listening position.
R: Connect the right speaker system as seen from the listening position.

NOTE:

Connect a speaker system having a nominal impedance ranging from 8 Ω to 16 Ω.

⑦ SURROUND SPEAKERS jacks

Connect the surround speaker systems.

NOTE:

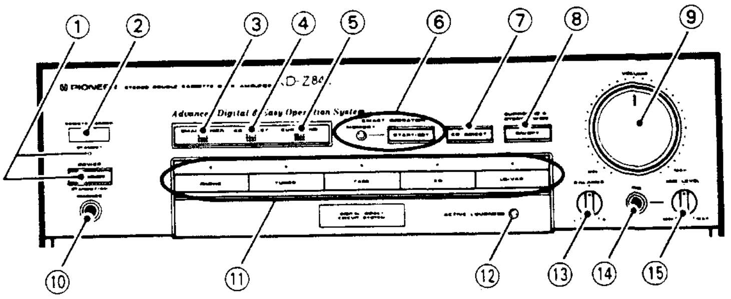
Connect a speaker system having a nominal impedance of 16 Ω or more.

⑧ Power cord

Connect this to the household electrical outlet.

FRONT PANEL FACILITIES

Amplifier section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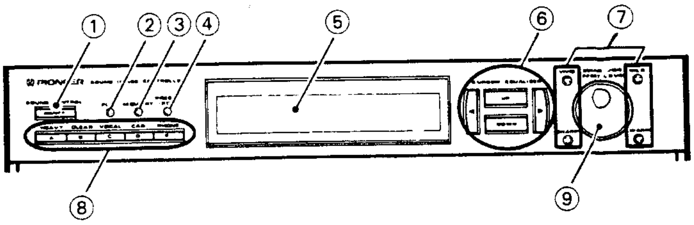
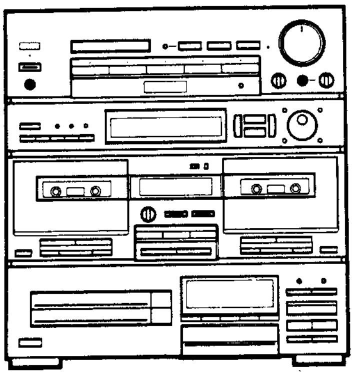
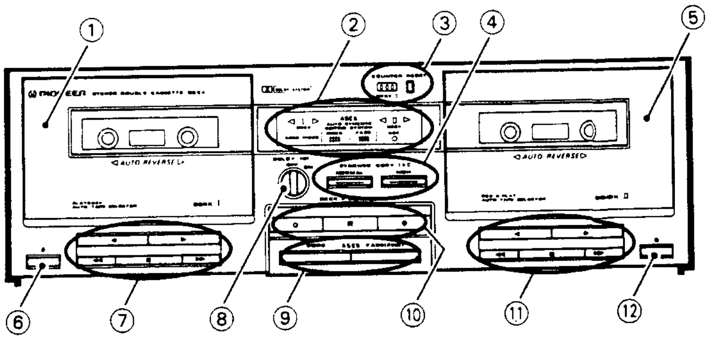
Sound image controller section



XD-Z84T



Cassette deck section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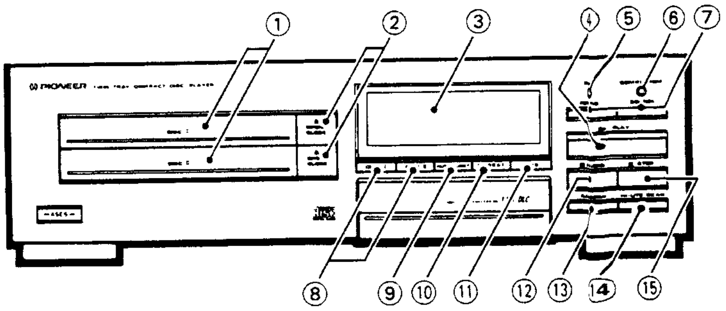
Compact disc player section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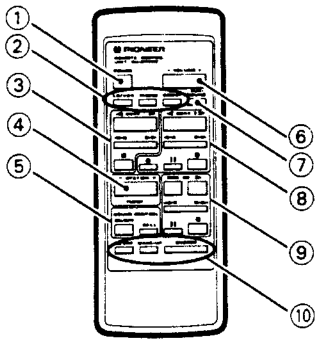
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- This unit has an automatic tape type selector.
- Tapes can be played back on deck I; tapes can be played back and recorded on deck II.
- Sound can be recorded as adjusted by the sound image controller.
- Use a normal or chrome position tape.

◪ Amplifier section

① POWER STANDBY/ON switch /STANDBY indicator

This is the switch for electric power.

ON: When set to the ON position, power is supplied and the unit becomes operational.

STANDBY: When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.
When the STANDBY indicator is on, the unit is in STANDBY.

② REMOTE SENSOR window

③ SMART OPER. (OPERATION) indicator

This lights when smart operation is on.
It goes out after about 30 seconds.

④ CD DIRECT indicator

This lights when CD DIRECT is on.

⑤ SURROUND indicator

This lights when SURROUND & STEREO WIDE is on.

⑥ SMART OPERATION buttons

[START/SET]
Use when programming memory and operating SMART OPERATION.
[MEMORY]
Use when programming SMART OPERATION into memory.

⑦ CD DIRECT button

Press this button to listen to a CD without passing the signal through sound quality adjustment circuits.

⑧ SURROUND & STEREO WIDE button

By turning this switch ON, you can enjoy surround reproduction when rear speakers are used.
By turning this switch ON, you can enjoy STEREO WIDE reproduction with greater left-right spread when rear speakers are not used.

NOTE:
- *In the case of monaural source, SURROUND & STEREO WIDE effects cannot be obtained.*
- *SURROUND & STEREO WIDE functions do not operate if CD DIRECT is on.*

⑨ VOLUME control

⑩ PHONES (Headphones) jack

For stereo headphones.

NOTE:
There is no output from the speakers when headphones are plugged into PHONES jack.

⑪ Input selector buttons

[PHONO]
Press to play records on a turntable connected to the PHONO jacks.
[TUNER]
Press to listen to radio broadcast.
[TAPE]
Press to listen to cassette tape.
[CD]
Press to listen to a CD.
[LD/VCR]
Press for playback on an LD player or VCR connected to the LD/VCR jacks.

⑫ ACTIVE LOUDNESS button

This switches the active loudness function ON and OFF. Depending on the volume setting on the amplifier, this function automatically boosts bass and treble response.

⑬ BALANCE control

Used for changing the balance between left and right channels. Usually set this control to the center position.

⑭ MIC (Microphone) jack

This is a standard jack for connecting a microphone.

⑮ MIC LEVEL control

Used for adjusting the volume of microphone.

◪ Sound image controller section

① SOUND CONTROL ON/OFF button

This switches the sound image controller on/off. When it's on, the SOUND CONTROL indicator in the display section lights.
During playback with CD DIRECT on, sound control is not possible.

② FLAT button

Press to reset the equalizer to flat response (no equalization).

③ MEMORY button

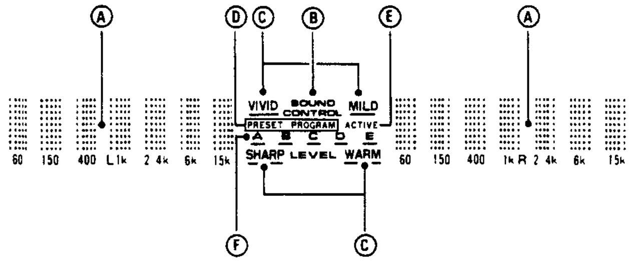
Use this to program your desired equalization setting into the memory recall buttons (A to E).

④ PRESET/PGM (PROGRAM) button

Use to switch between recall of PRESET memory settings and your own original memory settings (PROGRAM) with the memory recall buttons. The memory being recalled is indicated by the lit indicator in the display section.

⑤ Display section

Ⓐ Visual display of spectrum analyzer and graphic equalizer.
Ⓑ This lights when the sound control is on.
Ⓒ This indicates the recalled image effect. A lit bar under the letters indicates the one selected.
Ⓓ This indicates the memory (PRESET and PROGRAM) that can be recalled with the memory recall buttons.
Ⓔ This lights when active loudness is on.
Ⓕ Display of the memory being recalled with the memory recall buttons. A lit bar under A to E indicates the one selected.



⑥ CURSOR EQUALIZER buttons

Use to adjust graphic equalizer settings.
[◄, ►]: Use these to change the frequency range to be adjusted.
[UP, DOWN]: Use these to adjust the degree of equalization.

⑦ Image effect buttons

These buttons let you select the effect mode most suitable for a particular genre of music. Adjust the effect level with the SOUND JOG.

⑧ Memory (PRESET/PROGRAM) recall buttons

Use to recall preset equalization settings. Also use to program into memory and recall desired sound settings.

⑨ SOUND JOG

Use to adjust image effect level.

Cassette Deck Section

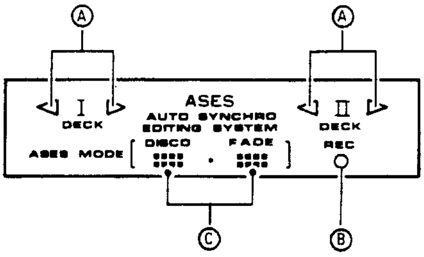
① Deck I cassette door

② Operation indicators

Ⓐ **Direction** (◁, ▷): Indicates direction of tape travel during recording or playback. Flashes slowly in Pause mode. Flashes rapidly during Music Search (MS).

Ⓑ **REC**: Lights when recording. It flashes during tape copying.

Ⓒ **ASES mode**
FADE: Fade edit in progress.
DISCO: Disco edit in progress.



③ DECK II COUNTER and RESET button

Press the RESET button to reset the tape counter display to 000.

④ SYNCHRO COPY I ► II buttons

Used for tape copying.

NORMAL:	Copying from the Deck I tape to the Deck II tape at normal recording/playback speed.
HIGH:	Copying at about twice normal tape speed. (Copies can be made in about half the NORMAL time.)

⑤ Deck II cassette door

⑥ Deck I EJECT button

⑦ Deck I operation buttons

► (PLAY: FWD)	For playing back a tape in the forward mode.
◄ (PLAY: REV)	For playing back a tape in the reverse mode.
■ (STOP)	For stopping the tape.
►► (FAST)	Fast forward in forward mode, rewind in reverse mode. Music search (MS) starts if this is pressed during playback.
◄◄ (FAST)	Rewind in forward mode, fast forward in reverse mode. Music search (MS) starts if this is pressed during playback.

⑧ DOLBY* NR switch

Set this switch to the ON position to activate the DOLBY NR system.

- Tapes recorded using Dolby noise reduction should always be played back with the noise reduction system on. Sound quality will be adversely affected if played back with the system off, or if tapes recorded using a different noise reduction system are played back with the Dolby NR system on.
- It is recommended that tapes recorded with Dolby B type NR be so marked on the label. This will help prevent incorrect setting of the noise reduction switch during playback.

---

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

⑨ A.S.E.S. buttons

Used for automatically recording a CD on cassette tape.
FADE (FINE): The sound fades out at the end of the tape.
DISCO: This cross-fades between songs during recording.

NOTE:

- *FINE is the mode when performing CD player COMPU PGM EDIT (Computer Allocated Program Editing).*
- *The FADE (FINE) modes provide a blank space of about five seconds between songs.*

⑩ DECK II CONTROL buttons

● (REC)	To set to recording standby mode. The REC indicator lights and the direction indicators (◁ and ▷) flash. Recording begins when you press the PLAY button (◄ or ►).
II (PAUSE)	Temporarily stops tape travel. Cancels pause mode when pressed again or press the PLAY button.
● (MUTE)	Used for creating a blank space between songs.

⑪ Deck II operation buttons

Same as Deck I operation buttons ⑦.

⑫ Deck II EJECT button

◪ CD player section

① DISC (I, II)

This is where the disc is set. When power is switched ON and the OPEN/CLOSE button is pressed, the tray is ejected forward.
To insert the tray, press the OPEN/CLOSE button, or lightly push the tray in with your finger. With the disc tray open, press the PLAY button to close the disc tray and start playback.

② OPEN/CLOSE button (I, II)

Press when you wish to eject or load a disc. Each time the buttons is pressed, the tray is alternately pushed out or pulled in.
I: Opens and closes DISC I.
II: Opens and closes DISC II.

③ Indicators

COMPU PGM:	Display when COMPU PGM editing is set or used.
AUTO EJECT:	Lights during auto eject playback.
PGM:	Lights after programming (after program has been memorized).
RND:	Lights during random playback.
SCAN:	Lights during HI-LITE scan playback.
I, II:	Displays the disc number (I or II) of the disc to be played.
►:	Lights during playback.
II:	Lights during temporarily interrupted playback.
1 ► REP:	Lights during repeat playback of one track.
REP:	Lights during repeat play.
TRACK (figure):	Displays the current track number and index number (during normal playback and programmed playback) or the track being programmed (during programmed operation).
MINUTES (figure):	Displays the minutes of the elapsed time, total playback time, and remaining time.
SECOND (figure):	Displays the seconds of the elapsed time, total playback time, and remaining time.

= = Display change = =

Changes each time the TIME (CALENDER) button is pressed.

- **TIME:** Displays the track number of the track being played (TRACK) and the elapsed time (minutes and seconds).
- **REMAIN:** Displays the remaining time on the track being played. When the TIME (CALENDER) button is pressed again, the remaining time on the disc being played will be displayed.
- **TOTAL:** Displays the total number of tracks on the disc (TRACK) and the overall playback time of disc II will be displayed. During playback, the display goes on for about 5 seconds before changing to the TIME display.
- **I/II (music calender):**
  Only the numbers of the track recorded on DISC I (DISC II) will light.
  When inputing a program and when playing, only the programmed track number will light.
  The track number will go out one by one after the tracks are played.
  Music calender changes DISC I to DISC II (DISC II to DISC I) by holding down TIME (CALENDER) button.
- **A/B (music calender):**
  TAPE SIDE A/TAPE SIDE B
  After editing, the track numbers that can be recorded on the A (B) side of the tape will light.
  Music calender changes A to B (B to A) by holding down TIME (CALENDER) button.

NOTE:
The music calendar section only indicates the tracks on a single disc, but manual switching between Disc I and Disc II is possible. Switching is not automatic.

④ PLAY button (►)

Press to begin playback, and to cancel the pause mode.

⑤ PGM button (PROGRAM)

Use to program a sequence of tracks.

- Press this button after selecting a desired disc and track with DISC SELECT and track search button. Tunes will be added to the program in the order in which they are specified.

⑥ COMPU PGM button

Press this button, and with the MANUAL/TRACK SEARCH buttons (|◄◄ ◄◄, ►► ►►|) specify the length of tape you want to use for recording. Before recording, the CD player automatically programs the order of tracks to minimize the amount of unused tape at the end of a selected tape length.

⑦ MANUAL/TRACK SEARCH buttons (|◄◄ ◄◄, ►► ►►|)

Use these buttons to perform track search during regular playback, programmed playback, or during pause.
Press a button to skip to the previous or the next track. You will continue moving to the next track in the direction of the button you pressed as long as you continue pressing the button

⑧ DISC SELECT buttons

DISC I: Use to select DISC I for playback or programming
DISC II: Use to select DISC II for playback or programming

- During playback, when the disc select button for the disc not being played is pressed, the current playback will stop and playback of that disc will begin.

⑨ AUTO EJECT button

Press to perform auto eject playback.
When a disc is finished playing, the disc's disc tray will automatically eject. The other disc tray will close and playback will start. By replacing discs, continuous playback can be maintained

⑩ REPEAT button

Press this button for repeat playback. Pressing the button once, twice, or three times will change the repeat mode from single track repeat, all tracks repeat, and repeat playback cancellation

⑪ TIME (CALENDER) button

This button selects the display mode. Each time the button is pressed, the indication changes from Time, Remain, to Total in that order. Calendar display can be switched by pressing this button (For details concerning the display contents, refer to the explanation about the indicators.)

⑫ PAUSE button (II)

Press to temporarily interrupt playback. When pressed again, the pause mode is canceled and playback resumes.

⑬ RANDOM PLAY button

Press to begin random playback.

⑭ HI-LITE SCAN button

10 second passages are played starting from the first minute of each track on the CD, in sequence, beginning with the first track.
To set the point in the tracks you want to scan, press this button during playback. The elapsed time is memorized, and then ten second passages of all the remaining tracks are played at the memorized time.

⑮ STOP button (■)

Press to stop playback. When pressed, the player goes into stop mode and all operations stop.
Press to clear a program. When pressed during stop mode, the program stored in memory is cleared.

PRECAUTIONS DURING TRANSPORTATION

- Before transporting, press the OPEN/CLOSE button (II) and open Disc II tray, then press the OPEN/CLOSE button again and close Disc II tray.
- When the track number display goes from "II-01" to "II-00," turn the power off.

NOTE:
Always remove the discs when moving the unit.

Remote control unit

① POWER button

② Function buttons

LD/VCR	Sets function to LD/VCR.
PHONO	Sets function to PHONO.
CD DIRECT	Sets function to CD DIRECT.

③ DECK I operation buttons:

Same as Deck I operation buttons on the CD cassette deck amplifier.

④ TUNER STATION button

- Before operation, memorize broadcast stations in the STATION CALL buttons.

+	Stations change in order in the upward direction.
–	Stations change in order in the downward direction.

⑤ SOUND CONTROL operation buttons

ON/OFF: Turns the sound image controller on and off.
CALL: Recalls the preset equalizing curves (PRESET) and memorized sound control (PROGRAM) in sequence.

⑥ VOLUME + (UP)/– (DOWN) button

When pressed, VOLUME on the amplifier is actually moved by a motor.

⑦ SURROUND button

Turns SURROUND & STEREO WIDE on and off.

⑧ Deck II operation button:

Same as Deck II operation buttons and DECK II CONTROL buttons on the cassette deck amplifier (except MUTE).

⑨ CD operation buttons

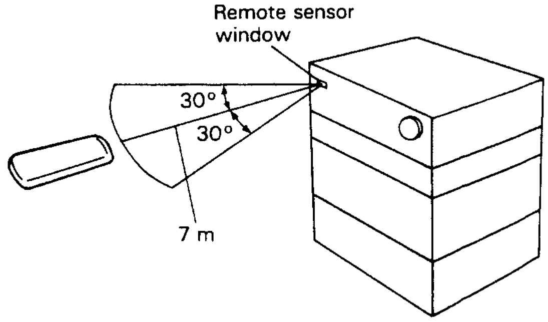
▶	Play
DISC	DISC selection
■	Stop
❚❚	Pause
⏮, ⏭	Track search

⑩ Timer operation buttons

SLEEP: Sets the sleep timer.
WAKE-UP: Timer playback setting/cancellation can be performed when the timer playback time has been set. This is shown in the tuner display section.
SNOOZE: Turns off power if pressed after timer playback begins. Timer playback begins again approx. 5 minutes later.

The amplifier input selector automatically switches to the music source being operated when you press the CD playback (▶), cassette deck playback (◀ , ▶), or tuner station controls.

Range of remote control



When the remote control unit is pointed at the remote sensor window on the amplifier section and any of its buttons is pressed, the tuner and other components can be operated by remote control.
Distance: Within a range of approx. 7 meters from the remote sensor window.
Angle: Within approx. 30 degrees from the center of the remote sensor window.
Remote control will not be possible if there is an obstacle between the remote control unit itself and the remote sensor window.
Performance of the remote control unit is adversely affected in the presence of strong fluorescent light. Keep such lights away, especially from the sensor window.

8. SPECIFICATIONS

Twin CD cassette deck amplifier: XD-Z84T

Amplifier Section

Music power (DIN)	80 W + 80 W (1 kHz, T.H.D. 1 %, 8 Ω)
Continuous Power Output (DIN)	45 W + 45 W (1 kHz, T.H.D. 1 %, 8 Ω)
Graphic equalizer frequency band	60 Hz, 150 Hz, 400 Hz, 1 kHz, 2.4 kHz, 6 kHz, 15 kHz, ±5.5 dB
Total Harmonic Distortion (40 Hz to 20,000 Hz, 22.5 W, 8 Ω)**	No more than 0.2 %

Cassette Deck Section

Systems	4 track, 2-channel stereo
Heads	Recording/playback head x 1 Erasing head x 1 Playback head x 1
Motor	DC servo 2 speed motor x 2
Wow and Flutter	No more than 0.09 % (WRMS)
Fast Winding Time	Approximately 105 seconds (C-60 tape)
Frequency Response (−20 dB recording):	
Normal tape	35 Hz to 14,000 Hz ±6 dB
CrO_2 tape	35 Hz to 15,000 Hz ±6 dB
Signal-to-Noise ratio	
Dolby NR OFF	56 dB
Noise Reduction Effect	
Dolby B type NR ON	More than 10 dB (at 5 kHz)

CD Section

Type	Compact disc digital audio system
Operating temperature	+5°C − +35°C
Frequency response	2 Hz − 20 kHz
S/N	100 dB or more (EIAJ)
Wow and flutter	Limit of measurement (±0.001 % W.PEAK) or less (EIAJ)
Number of channels	2 channels (stereo)

Furnished Parts

Operating Instructions	1
Remote Control Unit	1
Dry Cell Batteries	2

Miscellaneous

Power requirements	a.c. 220 Volts ~, 50/60 Hz
Power Consumption	310 W
Dimensions	360 (W) x 375.5 (H) x 309 (D) mm
Weight (without package)	10 kg

Accessories

EP Adapter	1

- *Specifications and design subject to possible modification without notice due to improvement.*

** *Measured By Audio Spectrum Analyzer.*

PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
ARP2140

ADJUSTMENTS FOR

XD-Z54T
XD-Z84T
DC-Z94
DC-Z84
DC-Z74

- **This service manual is a compilation of the adjustments in the preceding manual.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

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1. DECK AMP BLOCK 2
1. BLOC AMPLI PLATINE 6
1. BLOQUE DE AMPLIFICADOR DECK 10
2. CD BLOCK 14
2. BLOC CD 28
2. BLOQUE CD 42

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YV DEC. 1990 Printed in Japan

1. DECK AMP BLOCK

Adjustment of Mechanical section

- Test tape : STD-301 (3 kHz 30 min)
- Setting of double speed mode : Short-circuit TP1601 and TP1602 of the DISPLAY assembly. To release the mode, disconnect the short circuit.

1. Adjustment of tape speed

No.	Mode	Input signal & Test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1	PLAY	Playback the STD-301 tape to 3 kHz.	Deck I	DISPLAY assembly VR1601	AF assembly JP-L (Lch)	Press the PLAY button and adjust the frequency to 3010 Hz ±10 Hz. Make sure that the wow and flutter is within 0.2 %.	
2	PLAY (Double speed mode)			—		Press the PLAY button in double speed mode and confirm that the frequency is 6000 Hz ±1000 Hz. Note down the figure.	Release the double speed mode after adjustment.
3	PLAY (Double speed mode)		Deck II	DISPLAY assembly VR1603	AF assembly JP-R (Rch)	Press the PLAY button in double speed mode and adjust the frequency to be within ±30 Hz of the figure recorded at step No. 2.	Release the double speed mode after adjustment.
4	PLAY			DISPLAY assembly VR1602		Press the PLAY button and adjust the frequency to 3010 Hz ±10 Hz. Make sure that the wow and flutter is within 0.2 %.	

Adjustment of Electric section

■ Check and conduct the following before adjusting the electric section.

1. Adjustment of tape speed has been completed.
2. Clean and demagnetize the head using a head eraser.
3. When measured, the level should be 0 dBV = 1 Vrms.
4. Use side A of the specified tape for adjustment.
   STD-331B: For adjustment of playback system.
   STD-630: NORMAL blank tape
5. Prepare the following measuring devices:
   AC millivoltmeter, Low-frequency oscillator, Attenuator, Oscilloscope
6. Adjust both L and R channels, unless specified otherwise.
7. Set the DOLBY NR switches to OFF, unless specified otherwise.
8. Warm up the unit for several minutes before adjustment. Especially before adjusting the frequency characteristics of recording and playback, warm up for 3 to 5 minutes in REC/PLAY mode.
9. Make sure to follow the proper order of the adjustment procedure. Any change in the order may cause an improper result.
10. The AF assembly contains JP-L and JP-R.(See Fig.1−4)

List of Adjustment

Deck I

1. Head azimuth adjustment
2. Playback level adjustment

Deck II

1. Head azimuth adjustment
2. Playback level adjustment
3. Bias oscillation frequency adjustment
4. Recording level adjustment
5. Adjustment of frequency characteristics of recording / playback

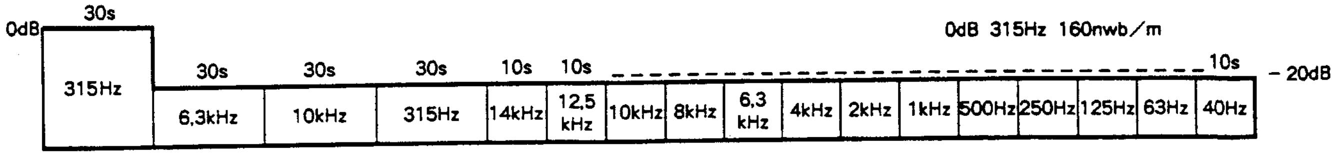

0dB
30s
315Hz
0dB 315Hz 160nwb/m
30s
30s
30s
10s
10s
10s
－20dB
6.3kHz
10kHz
315Hz
14kHz
12.5 kHz
10kHz
8kHz
6.3 kHz
4kHz
2kHz
1kHz
500Hz
250Hz
125Hz
63Hz
40Hz

Fig. 1－1 Test tape STD-331B

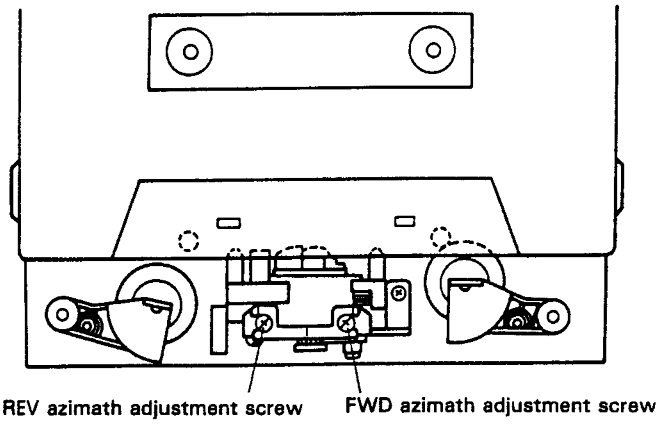

REV azimath adjustment screw
FWD azimath adjustment screw

Fig. 1－2 Head azimath adjustment

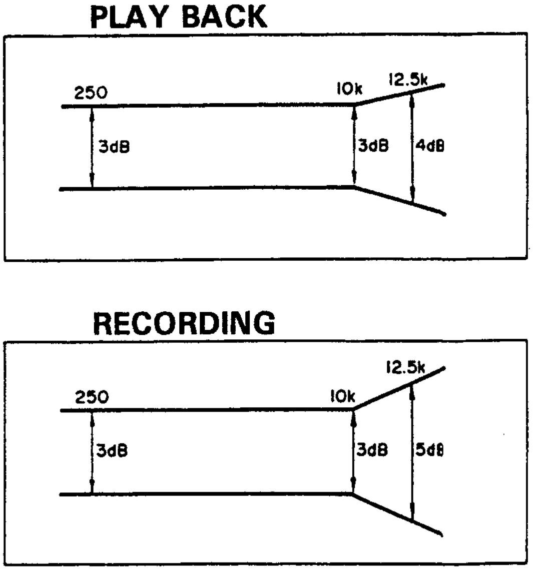


Fig. 1－3 Frequency characteristics

• Head Adjustment of Deck I

- Deck I is provided with an automatic tape selector mechanism.
- Note: Do not switch over FWD and REV while the screw driver is inserted.

1. Head Azimuth Adjustment

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (10 kHz, －20 dB).	Head azimuth adjustment screw (Fig. 1-2)	JP-L (Lch) JP-R (Rch)	Maximum playback signal level	Lock the screw with screw lock after completing adjustment.

2. Playback Level Adjustment

- Be sure to make a careful adjustment, as the adjustment determines the DOLBY NR level for playback.

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (315 Hz, 0 dB).	1 Mecha assembly VR2001 (Lch) VR2002 (Rch)	JP-L (Lch) JP-R (Rch)	－5.2 dBv	

• Head Adjustment of Deck II

- Deck II is provided with an automatic tape selector mechanism.
- Note: Do not switch over FWD and REV while the screw driver is inserted.
- DC−Z94/SD and YPW types: in the following table of adjustment values *1 becomes −10.3dBv and *2 becomes −30.3dBv.

1. Head Azimuth Adjustment

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (10 kHz, −20 dB).	Head azimuth adjustment screw (Fig. 1-2)	JP-L (Lch) JP-R (Rch)	Maximum playback signal level	Lock the screw with screw lock after completing adjustment.

2. Playback Level Adjustment

- Be sure to make a careful adjustment, as the adjustment determines the DOLBY NR level for playback.

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (315 Hz, 0 dB).	2 Mecha assembly VR2021 (Lch) VR2022 (Rch)	JP-L (Lch) JP-R (Rch)	−5.2 dBv *1	

3. Bias oscillation frequency adjustment

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Load the test tape STD-630 and set to record mode.	2 Mecha assembly T2251	Area between Ⓐ and Ⓑ (2 Mecha assembly) shown in Fig.1-6.	The oscillation frequency is 105 kHz ±5 kHz.	

4. Recording Level Adjustment

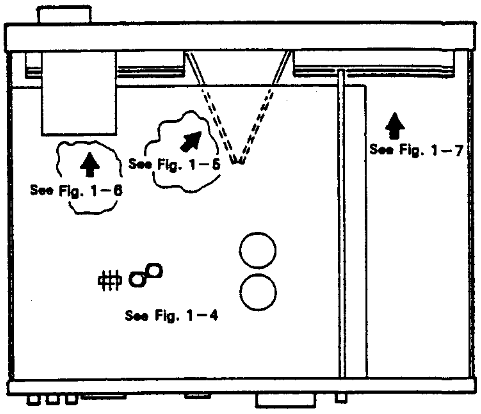
Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the LD/VCR input terminal and set the function to "LD/VCR".	Input signal level	JP-L (Lch) JP-R (Rch)	−5.2 dBv *1	
2	NORM	REC / PLAY	Record and playback the test tape STD-630 (315 Hz).	AF assembly VR2201 (Lch) VR2202 (Rch)	JP-L (Lch) JP-R (Rch)	Repeat the recording/playback, and make adjustment so that the playback level of 315 Hz is −5.2 dBv.	

5. Adjustment of frequency characteristics of recording/playback

- As this procedure is for adjustment of the recording bias, be careful not to increase the distortion by under-adjusting the bias.

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the LD/VCR input terminal and set the function to "LD/VCR".	Input signal level	JP-L (Lch) JP-R (Rch)	−25.2 dBv *2	
2	NORM	REC / PLAY	Record and playback the test tape STD-630 (315 Hz and 10 kHz).	2 Mecha assembly VR2251 (Lch) VR2252 (Rch)	JP-L (Lch) JP-R (Rch)	Repeat the recording/playback, and make adjustment so that the playback level of 10 kHz remains 0 ±0.5 dB in relation to 315 Hz.	

• Adjustment location


See Fig. 1－6
See Fig. 1－5
See Fig. 1－7
See Fig. 1－4

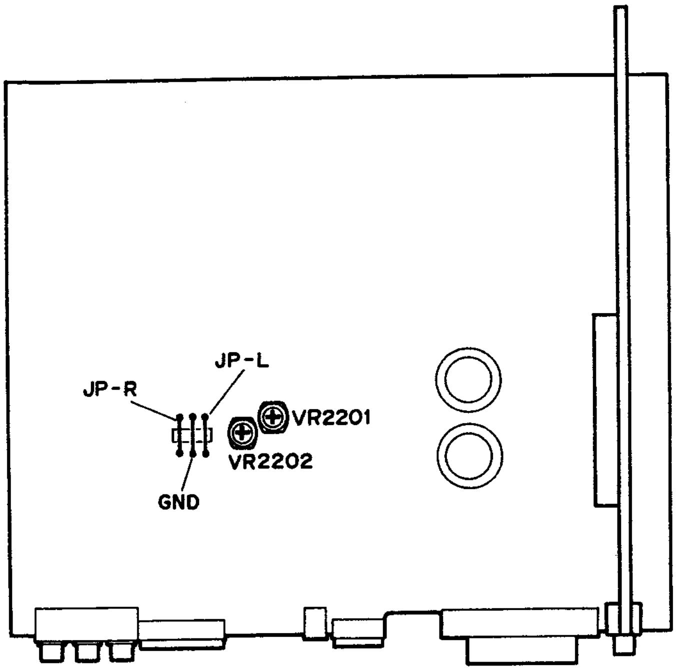
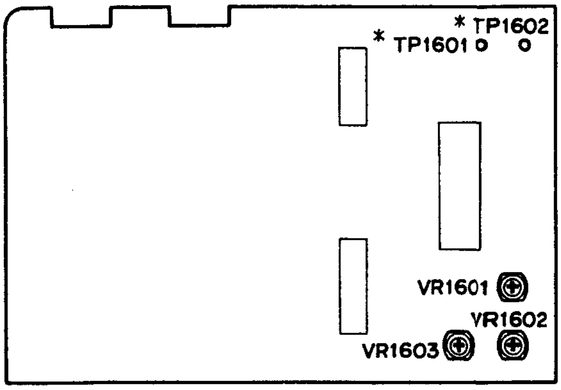

JP－L
JP－R
VR2201
VR2202
GND

Fig. 1－4 AF assembly


* TP1602
* TP1601
VR1601
VR1602
VR1603

* : TP1601 and TP1602 are not indicated on the P.C.Board.

Fig. 1－5 DISPLAY assembly

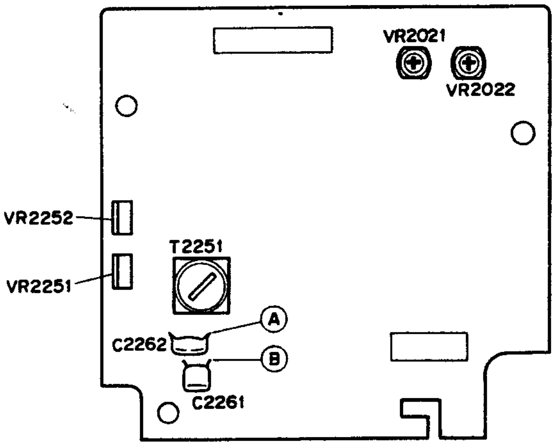

VR2021
VR2022
VR2252
VR2251
T2251
Ⓐ
C2262
Ⓑ
C2261

Fig. 1－6 2 Mecha assembly

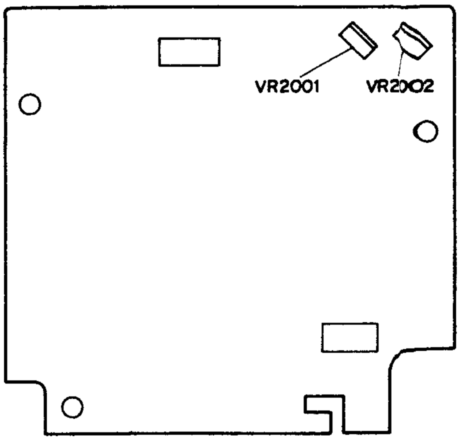

VR2001
VR2002

Fig. 1－7 1 Mecha assembly

1. BLOC AMPLI PLATINE

Réglages des parties mécaniques

- Bande d'étalonnage: STD-301 (3 kHz, 30 mn.)
- Réglage du mode de vitesse double : Court-circuiter TP1601 et TP1602 de l'ensemble AFFICHAGE. Pour libérer le mode, déconnecter le court-circuit.

1. Réglage de la vitesse de bande

No.	Mode	Signal appiligeé /bande d'étalonnage	Emplacement du réglage		Emplacement du point de mesure	Valeur relevée	Dbservations
1	PLAY	Reproduire la bande STD-301 par 3 kHz.	Platine I	Ensemble AFFICHAGE VR1601	Ensemble AF JP-L (can. G)	Appuyer sur la touche PLAY et régler la fréquence sur 3010 Hz ±10 Hz. Vérifier que le pleurage et scintillement est dans la limite de 0,2%.	
2	PLAY (Mode de vitesse double)			—		Appuyer sur la touche PLAY dans le mode de vitesse double et vérifier que la fréquence est 6000 Hz ±1.000 Hz. Noter le chiffre.	Libérer le mode de vitesse double après le réglage.
3	PLAY (Mode de vitesse double)		Platine II	Ensemble AFFICHAGE VR1603	Ensemble AF JP-R (can. D)	Appuyer sur la touche PLAY dans le mode de vitesse double et régler la fréquence pour qu'elle soit dans la limite de ±30 Hz du chiffre noté dans l'étape No. 2.	Libérer le mode de vitesse double après le réglage.
4	PLAY			Ensenble AFFICHAGE VR1602		Appuyer sur la touche PLAY et régler la fréquence sur 3010 Hz ±10 Hz. Vérifier que le pleurage et scintillement est dans la limite de 0,2%.	

Réglages des parties électriques

■ Vérifier les points suivants et effectuer les opérations suivantes avant procéder aux réglages des parties électriques.

1. Le réglage de la vitesse de bande a été complété.
2. Nettoyer et démagnétiser la tête avec un démagnétiseur de tête.
3. Lors de la mesure, le niveau doit être de 0 dBV = 1 Vepp.
4. Utiliser la face A de la bande spécifiée pour le réglage. STD-331B: Pour le réglage du système de lecture.
   STD-630: Bande vierge NORMAL
5. Préparer les instruments de mesure suivants:
   Millivoltmètre CA, oscillateur à basse fréquence, éatténnateur et oscilloscope.
6. Régler les deux canaux L (gauche) et R (droit), sauf spécification contraire.
7. Régler les commutateurs DOLBY NR sur la position OFF, sauf spécification contraire.
8. Laisser chauffer l'appareil pendant plusieurs minutes avant le réglage. En particulier avant d'effectuer le réglage de la réponse en fréquence d'enregistrement et de lecture, laisser chauffer l'appareil pendant 3 à 5 minutes dans le mode d'enregistrement/lecture (REC/PLAY).
9. Toujours suivre l'ordre spécifié de la méthode de réglage. Tout changement de l'ordre peut provoquer des résultats-incorrects.
10. L'ensemble AF comprend JP-L et JP-R.(Voir Fig. 1−4)

Liste des réglages

Platine I

1. Azimut de la tête
2. Niveau de lecture

Platine II

1. Azimut de la tête
2. Niveau de lecture
3. Réglage de fréquence d'oscillation de polarisation
4. Niveau d'enregistrement
5. Réponse en fréquence d'enregistrement / lecture

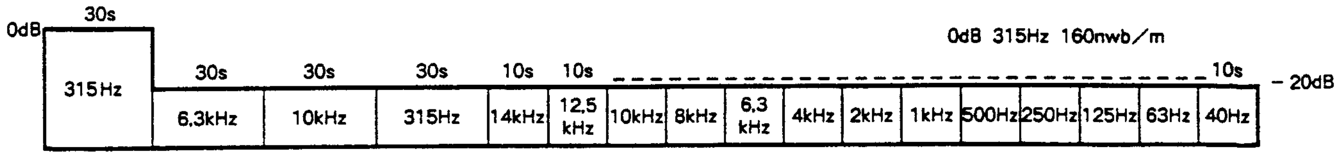

0dB
30s
315Hz
30s
6.3kHz
30s
10kHz
30s
315Hz
10s
14kHz
10s
12.5 kHz
10kHz
8kHz
6.3 kHz
4kHz
2kHz
1kHz
500Hz
250Hz
125Hz
63Hz
10s
40Hz
0dB 315Hz 160nwb/m
- 20dB

Fig. 1 – 1 Bande d'étalommge STD-331B

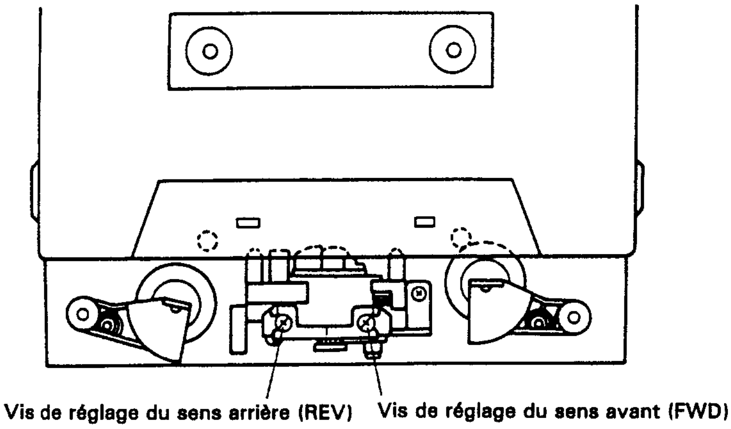

Vis de réglage du sens arrière (REV)
Vis de réglage du sens avant (FWD)

Fig. 1 – 2 Réglage d'azimut de la tête

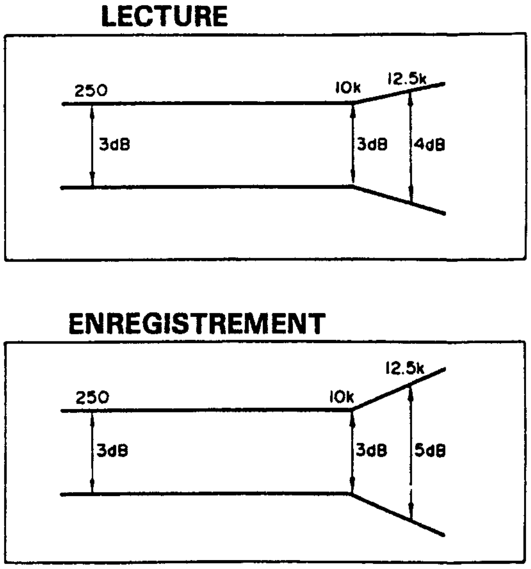


Fig. 1 – 3 Réponse en fréquence

• Réglage de la Platine I

- La Platine I est équipée d'un mécanisme de sélection automatique de bande.
- Remarque: Ne pas commuter entre le sens avant (FWD) et le sens arrière (REV) pendant que le tournevis est inséré.

1. Réglage d'azimut de la tête

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur mesurée	Obserrations
1	NORM	PLAY	Reproduire la bande d'étalonnage STD-331B (10 kHz, −20 dB).	Vis de réglage d'ézimut de tête (Fig. 1-2)	JP-L (can. G) JP-R (can. D)	Niveau maximum du signal de lecture	Une fois le réglage terminé, bloquer la vis avec un frein de vis.

2. Réglage du niveau de lecture

- Toujours effectuer un réglage minutieux, car la valeur réglée sera le niveau Dolby pour la lecture.

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur mesurée	Obserrations
1	NORM	PLAY	Reproduire la bande d'éealonnfe STD-331B (315 kHz, 0 dB)	Ensemble MECA 1 VR2001 (can. G) VR2002 (can. D)	JP-L (can. G) JP-R (can. D)	−5.2 dBv	

• Réglage de la Platine II

- La Platine II est équipée d'un mécanisme de sélection automatique de bande.
- Remarque : Ne pas commuter entre le sens avant (FWD) et le sens arrière (REV) pendant que le tournevis est inséré.
- Types DC−Z94/SD et YPW : dans le tableau suivant les valeurs de réglage *1 et *2 sont respectivement égales à −10,3 dBv et −30,3 dBv.

1. Réglage d'azimut de la tête

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur mesurée	Obserrations
1	NORM	PLAY	Reproduire la bande d'étalonnage STD-331B (10 kHz, −20 dB).	Vis de réglage d'ézimut de tête (Fig. 1-2)	JP-L (can. G) JP-R (can. D)	Niveau maximum du signal de lecture	Une fois le réglage terminé, bloquer la vis avec un frein de vis.

2. Réglage du niveau de lecture

- Toujours effectuer un réglage minutieux, car la valeur réglée sera le niveau Dolby pour la lecture.

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur mesurée	Obserrations
1	NORM	PLAY	Reproduire la bande d'éealonnfe STD-331B (315 kHz, 0 dB)	Ensemble MECA 2 VR2021 (can. G) VR2022 (can. D)	JP-L (can. G) JP-R (can. D)	−5.2 dBv *1	

3. Réglage de fréquence d'oscillation de polarisation

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur mesurée	Obserrations
1	NORM	REC	Charger la bande d'éealonnage STD-630 et régler dans le mode d'enregistrement.	Ensemble MECA 2 T2251	Zone entre Ⓐ et Ⓑ (ensemble MECA 2) montrée à la Fig. 1-6.	La fréquence d'oscillation est de 105 kHz ±5 kHz.	

4. Réglage du niveau d'enregistrement

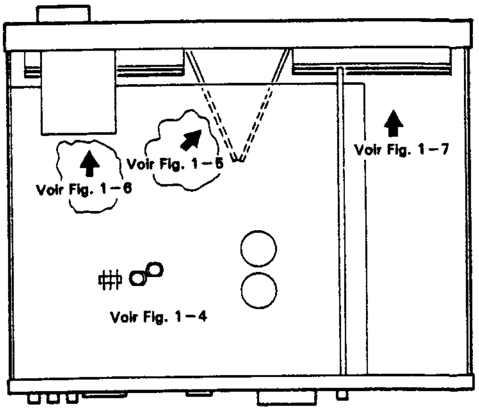
Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur mesurée	Obserrations
1	NORM	REC	Appliquer un signal de 315 Hz à la borne d'entrée LD/VCR et régler la fonction sur "LD/VCR".	Niveau du signal d'entrée	JP-L (can. G) JP-R (can. D)	−5.2 dBv *1	
2	NORM	REC / PLAY	Enregistrer et reproduire la bande d'étalonnageSTD-630 (315 Hz).	Ensemble AF VR2201 (can. G) VR2202 (can. D)	JP-L (can. G) JP-R (can. D)	Répéter l'enregistrement/lecture et faire l'ajustment de sorte que le niveau de lecture de 315 Hz soit de −5,2 dBv.	

5. Réglage de la réponsen fréquence d'enregistrement/lecture

- Cette opération réglant la polarisation d'enregistrement, faire attention de ne pas augmenter la distorsion par un réglage insuffisant de la polarisation.

Opéra-tion	Sélecteur de bande	Mode	Signal appiligeé / bande d'étalonnage	Emplacement du réglage	Emplacement du point de mesure	Valeur mesurée	Obserrations
1	NORM	REC	Appliquer un signal de 315 Hz à la borne d'entrée LD/VCR et régler la fonction sur "VD/VCR".	Niveau du signal d'entrée	JP-L (can. G) JP-R (can. D)	−25.2 dBv *2	
2	NORM	REC / PLAY	Enregistrer et reproduire la bande d'étalonnage STD-630 (315 Hz et 10 kHz).	Ensemble MECA 2 VR2251 (can. G) VR2252 (can. D)	JP-L (can. G) JP-R (can. D)	Répéter l'enregistrement/lecture et faire l'ajustment de sorte que le niveau de lecture de 10 kHz soit de 0 ±0,5 dB en relation avec 315 Hz.	

- **Points de réglage**


Voir Fig. 1–6
Voir Fig. 1–5
Voir Fig. 1–7
Voir Fig. 1–4

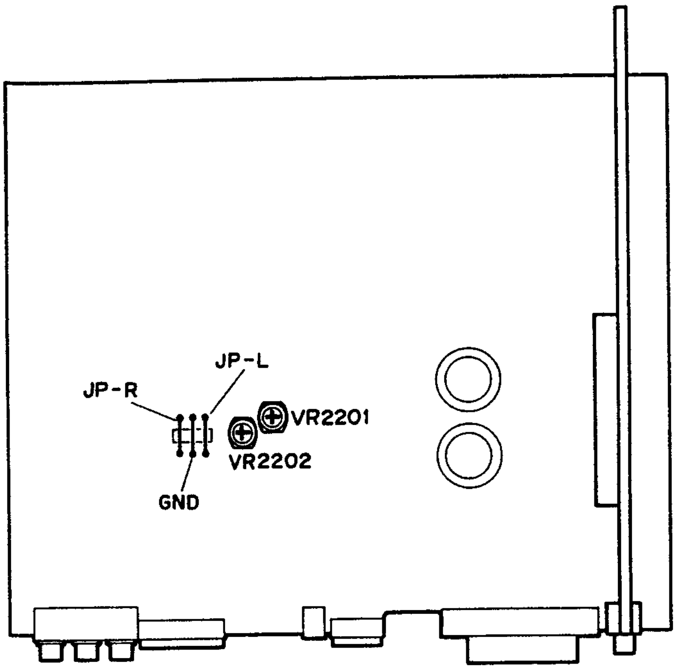
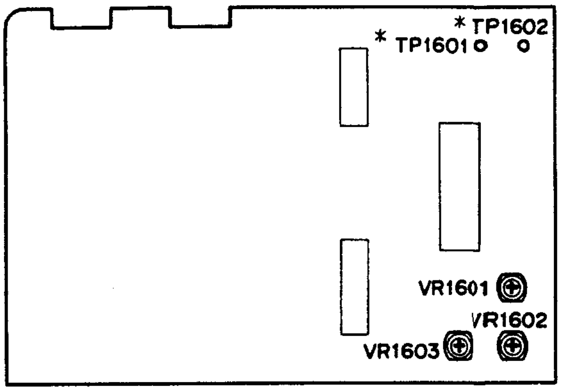

JP-L
JP-R
VR2201
VR2202
GND

Fig. 1–4 Ensemble AF


*TP1602
* TP1601
VR1601
VR1602
VR1603

* : TP1601 et TP1602 ne sont pas indiqués sur la carte.

Fig. 1–5 Ensemble AFFICHAGE

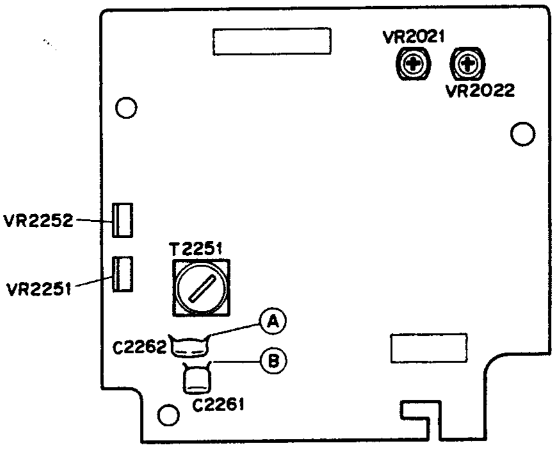

VR2021
VR2022
VR2252
VR2251
T2251
Ⓐ
C2262
Ⓑ
C2261

Fig. 1–6 Ensemble MECA 2

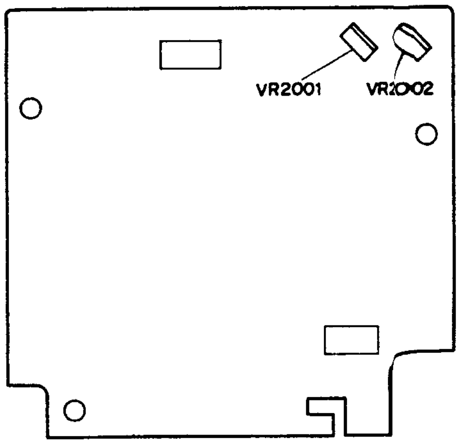

VR2001
VR2002

Fig. 1–7 Ensemble MECA 1

1. BLOQUE DE AMPLIFICADOR DECK

Ajuste de la sección mecánica

- Cinta de prueba: STD-301 (3 kHz, 30 min)
- Ajuste del modo de velocidad doble: Cortocircuite TP1601 y TP1602 del conjunto del visualizador (DISPLAY). Para desactivar el modo, desconecte el cortocircuito.

1. Ajuste de la velocidad de la cinta

Nº	Modo	Señal de enerada/ cinea de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Observaciones
1	PLAY	Reproducci´on de la cinta STDy301 a 3 kHz	Sección I	VR1601 del conjunto DISPLAY	JP-L del conjunto AF (canal izquierdo)	Presione el botón PLAY y ajuste la frecuencia a 3010 Hz ±10 Hz. Cerciórese de que la fluctuación y el efecto de trémolo estén dentro de los límites del 0,2%.	
2	PLAY (Modo de velocidad doble)			—		Presione el botón PLAY en el modo de velocidad doble y compruebe si la frecuencia es 6000 Hz ±1000 Hz. Anote el valor.	Después del ajuste, desactive el modo de velocidad doble.
3	PLAY (Modo de velocidad doble)		Sección II	VR1603 del conjunto DISPLAY	JP-R del conjunto AF (canal derecho)	Presione el botón PLAY en el modo de velocidad doble y ajuste la frecuencia de forma que quede a ±30 Hz del valor anotado en el paso N°2.	Después del ajuste, desactive el modo de velocidad doble.
4	PLAY			VR1602 del conjunto DISPLAY		Presione el botón PLAY y ajuste la frecuencia a 3010 Hz ±10 Hz. Cerciórese de que la fluctuación y el efecto de trémolo estén dentro de los límites del 0,2%.	

Ajuste de la sección eléctrica

■Antes de ajustar el sección eléctrica, compruebe y realice lo siguiente.

1. El ajuste de la velocidad de la cinta ha finalizado.
2. Limpie y desmagnetice la cabeza empleando un desmagnetizador de cabezas.
3. Cuando se mida, el nivel devel debe ser de 0 dBV = 1V rms.
4. Emplee el lado A de la cinta especificada para realizar el ajuste.
   STD-331B: Para ajuste del sistema de reproducción.
   STD-630: Cinta en blanco NORMAL
5. Prepare los dispositivos de medición siguientes: Milivoltímetro de CA, oscilador de baja frecuencia, atenuador, y osciloscopio
6. Ajuste ambos canales, izquierdo y derecho, a menos que se especifique otra cosa.
7. Ponga los interruptores DOLBY NR en OFF, a menos que se especifique otra cosa.
8. Antes del ajuste, deje que la unidad se caliente durante varios minutos.
   Especialmente antes de ajustar las características de frecuencia de grabación y reproducción, deje que se caliente durante 3 a 5 minutos en el modo REC/PLAY.
9. Cerciórese de seguir el orden apropiado del procedimiento de ajuste. Cualquier cambio en el orden podría causar un resultado inadecuado.
10. El conjunto AF contiene JP-L y JP-R.(Vea la Fig. 1−4)

Lista de adjuste

Sección I

1. Azimut de la cabeza
2. Nivel de reproducción

Sección II

1. Azimut de la cabeza
2. Nivel de reproducción
3. Ajuste de la frecuencia de oscilación de polarización
4. Nivel de grabación
5. Características de frecuencia de grabación/reproducción

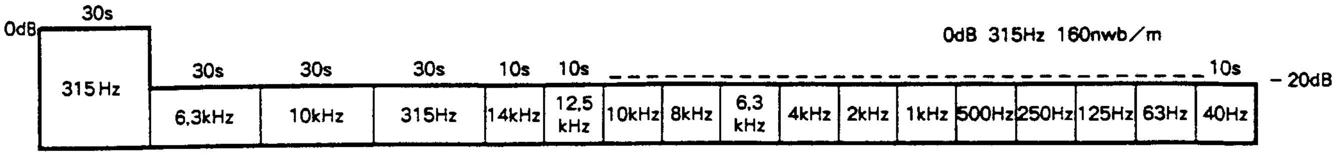

0dB
30s
315Hz
30s
6.3kHz
30s
10kHz
30s
315Hz
10s
14kHz
10s
12.5 kHz
10kHz
8kHz
6.3 kHz
4kHz
2kHz
1kHz
500Hz
250Hz
125Hz
63Hz
10s
40Hz
0dB 315Hz 160nwb/m
−20dB

Fig. 1−1 Cinta de prueba STD-331B

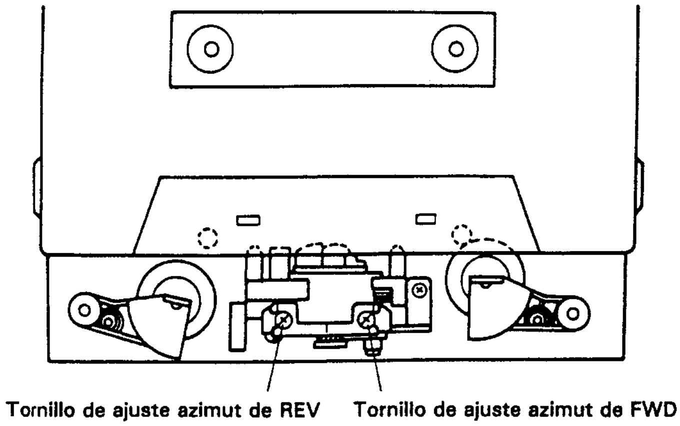

Tornillo de ajuste azimut de REV
Tornillo de ajuste azimut de FWD

Fig. 1−2 Ajuste del azimut de la cabeza

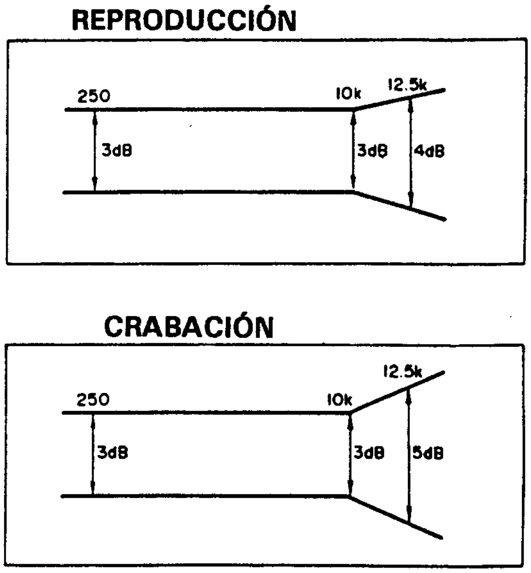


Fig. 1−3 Características de frecuencia

• Ajuste de la sección I

- La sección I dispone de un mecanismo selector automático de cinta.
- Nota : No cambie a FWD ni a REV mientras el destornillador esté insertado.

1. Ajuste azimutal de la cabeza

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (10 kHz, −20 dB).	Tornillo de ajuste azimutal de la cabeza (Fig. 1-2)	JP-L (canal izquierdo) JP-R (canal derecho)	Nivel máximo de la señal de reproducción	Bloquee el tornillo con bloqueador de tornillos después de haber terminado el ajuste.

2. Ajuste del nivel de reproducción

- Tenga mucho cuidado durante el ajuste, ya que el valor ajustado será el nivel Dolby fijado para reproducción.

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (315 Hz, 0 dB).	Conjunto mecánico 1 VR2001 (canal izquierdo) VR2002 (canal derecho)	JP-L (canal izquierdo) JP-R (canal derecho)	−5.2 dBv	

• Ajuste de la sección II

- La sección II dispone de un mecanismo selector automático de cinta.
- Nota : No cambie a FWD ni a REV mientras el destornillador esté insertado.
- Tipos DC−Z94/SD y YPW : En la tabla siguiente de valores de ajuste, *1 pasa a ser −10,3 dBv y *2 pasa a ser −30,3 dBv.

1. Ajuste azimutal de la cabeza

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (10 kHz, −20 dB).	Tornillo de ajuste azimutal de la cabeza (Fig. 1-2)	JP-L (canal izquierdo) JP-R (canal derecho)	Nivel máximo de la señal de reproducción	Bloguee el tornillo con bloqueador de tornillos después de haber terminado el ajuste.

2. Ajuste del nivel de reproducción

- Tenga mucho cuidado durante el ajuste, ya que el valor ajustado será el nivel Dolby fíjado para reproducción.

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	PLAY	Ponga la cinta de prueba STD-331B en reproducción (315 Hz, 0 dB).	Conjunto mecánico 2 VR2021 (canal izquierdo) VR2022 (canal derecho)	JP-L (canal izquierdo) JP-R (canal derecho)	−5.2 dBv *1	

3. Ajuste de la frecuencia de oscilación de polarización

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	REC	Cargue la cinta de prueba STD-630 y establezca el modo de grabación.	Conjunto mecánico 2 T2251	Area entre Ⓐ y Ⓑ (conjunto mecánico 2) mostrada en la Fig. 1-6.	La frecuencia de oscilación es de 105 kHz ±5 kHz.	

4. Ajuste del nivel de grabación

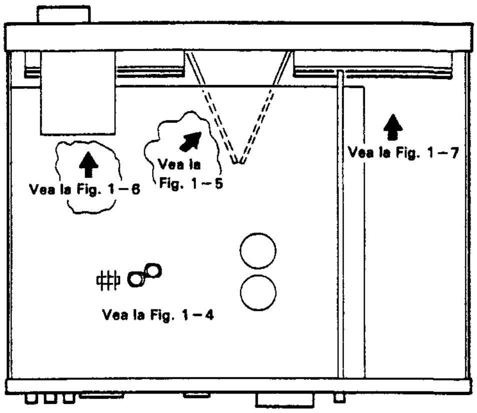
Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	REC	Aplique una señal de 315 Hz al terminal de entrada LD/VCR y ajuste la función a "LD/VCR".	Nivel de la señal de entrada	JP-L (canal izquierdo) JP-R (canal derecho)	−5.2 dBv *1	
2	NORM	REC / PLAY	Grabe y reproduzca la cinta de prueba STD-630 (315 Hz).	Conjunto AF VR2201 (canal izquierdo) VR2202 (canal derecho)	JP-L (canal izquierdo) JP-R (canal derecho)	Repita la grabación/reproducción, y realice ajustes de forma que el nivel de reproducción de 315 Hz sea de −5,2 dBv.	

5. Ajuste de las características de frecuencia de grabación/reproducción

- Como este procedimiento es para el ajuste de la polarización de grabación, tenga cuidado de no aumentar el valor de distorsión mediante el subajuste de la polarización.

Procedimiento	Selector de cinta	Modo	Señal de entrada / cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	NORM	REC	Aplique una señal de 315 Hz al terminal de entrada LD/VCR y ajuste la función a "LD/VCR".	Nivel de la señal de entrada	JP-L (canal izquierdo) JP-R (canal derecho)	−25.2 dBv *2	
2	NORM	REC / PLAY	Grabe y reproduzca la cinta de prueba STD-630 (315 Hz y 10 kHz).	Conjunto mecánico 2 VR2251 (canal izquierdo) VR2252 (canal derecho)	JP-L (canal izquierdo) JP-R (canal derecho)	Repita la grabación/reproducción, y realice ajustes de forma que el nivel de reproducción de 10 kHz sea de 0 ±0,5 dB en relación con 315 Hz.	

- **Punto de ajuste**


Vea la Fig. 1−6
Vea la Fig. 1−5
Vea la Fig. 1−7
Vea la Fig. 1−4

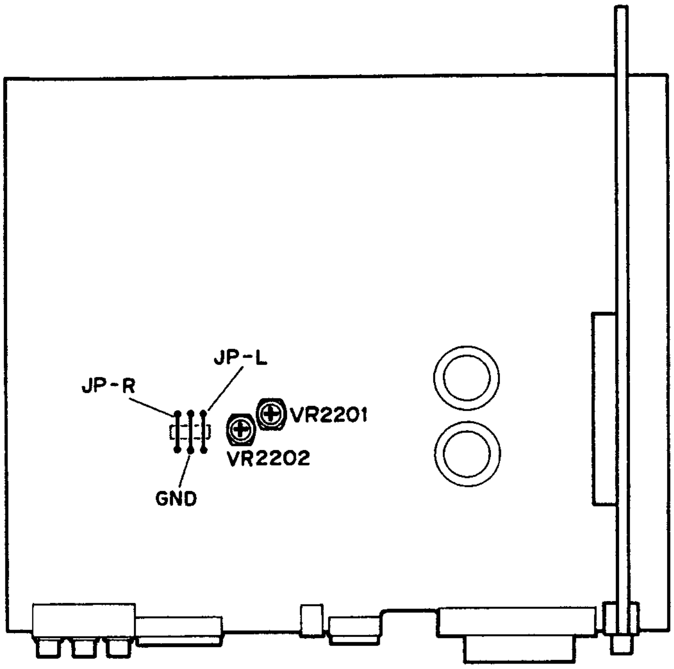
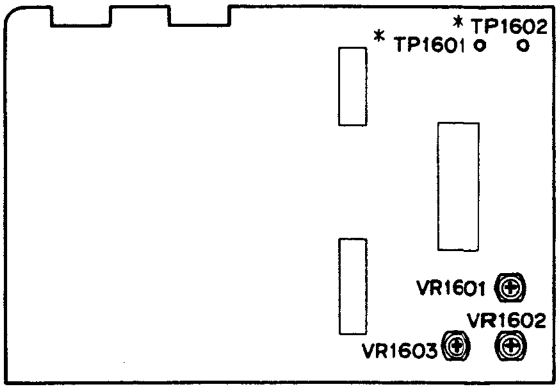

JP-L
JP-R
VR2201
VR2202
GND

Fig. 1−4 Conjunto AF


* TP1602
* TP1601
VR1601
VR1602
VR1603

* : TP1601 y TP1602 no están indicados sobre el tablero.

Fig. 1−5 Conjunto DISPLAY

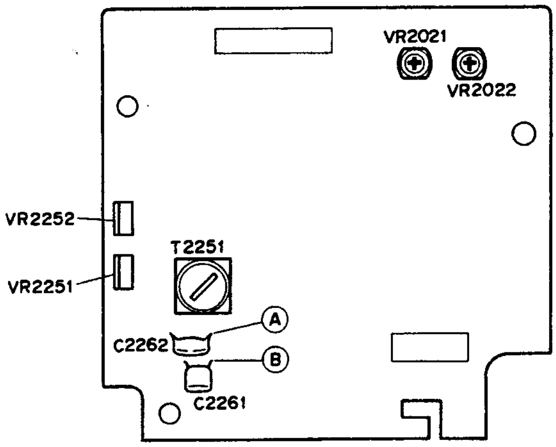

VR2021
VR2022
VR2252
T2251
VR2251
Ⓐ
C2262
Ⓑ
C2261

Fig. 1−6 Conjunto mecánico 2

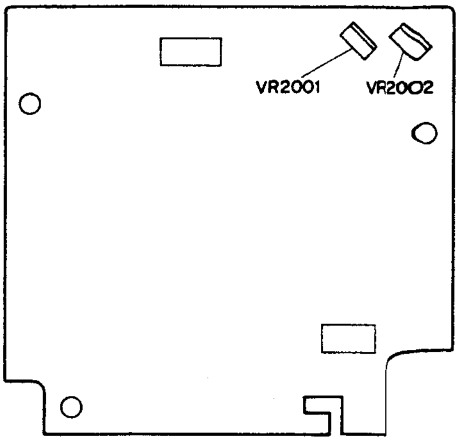

VR2001
VR2002

Fig. 1−7 Conjunto mecánico 1

2. CD BLOCK

● FOR XD–Z54T AND XD–Z84T TYPES ONLY

1. Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

1-1 Adjustment items/verification items and order

Step	Item	Test point	Adjustment location
1	Focus offset adjustment	TP1, Pin 6 (FCS. ERR)	VR103 (FCS. OFS)
2	Grating adjustment	TP1, Pin 2 (TRK. ERR)	Grating adjustment slit
3	Tracking error balance adjustment	TP1, Pin 2 (TRK. ERR)	VR102 (TRK. BAL)
4	Pickup radial/ tangential direction tilt adjustment	TP1, Pin 1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
5	RF level adjustment	TP1, Pin 1 (RF)	VR1 (RF level)
6	Focus servo loop gain adjustment	TP1, Pin 5 (FCS. IN) TP1, Pin 6 (FCS. ERR)	VR152 (FCS. GAN)
7	Tracking servo loop gain adjustment	TP1, Pin 3 (TRK. IN) TP1, Pin 2 (TRK. ERR)	VR151 (TRK. GAN)
8	Focus error signal verification	TP1, Pin 6 (FCS. ERR)	———

● Abbreviation table

FCS. ERR : Focus Error
FCS. OFS : Focus Offset
TRK. ERR : Tracking Error
TRK. BAL : Tracking Balance
FCS. IN : Focus In
TRK. IN : Tracking In

1-2 Measuring instruments and tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. 12-cm disc (with at least about 70 minutes of recording)
5. Low-pass filter (39 kΩ + 0.001 μF)
6. Resistor (100 kΩ)
7. Hexagonal wrench (M3 mm)
8. Standard tools

1-3 Test point and adjustment variable resistor positions

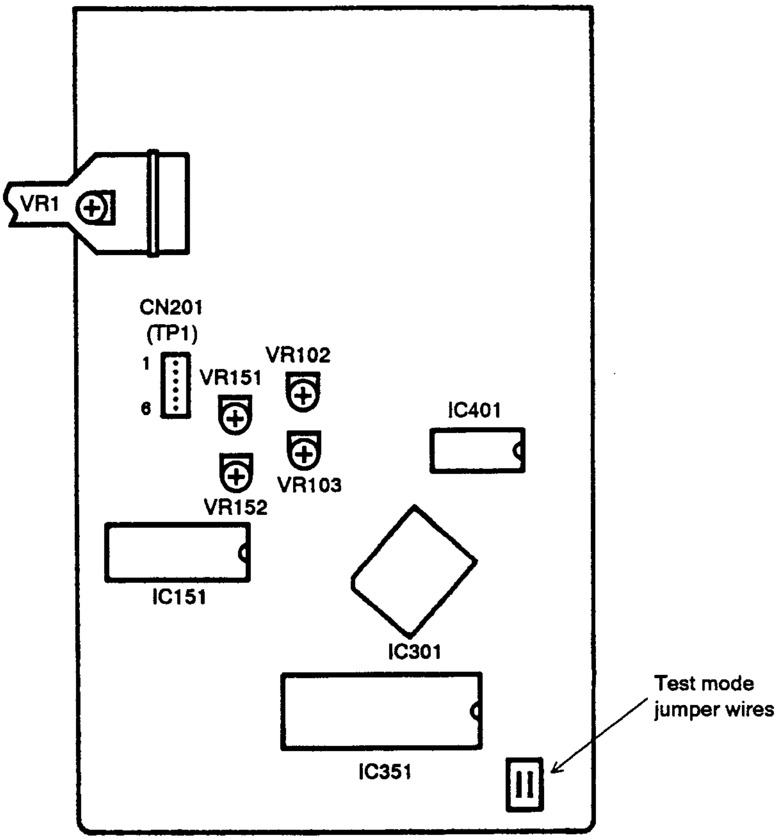


Figure 1 Adjustment Locations

1-4 Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

1-5 Test mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.
1. Turn off the power switch.
2. Short the test mode jumper wires. (See Figure 1.)
3. Turn on the power switch.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1-3.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Turn off the power switch on the front panel.

[Operations of the keys in test mode]

Code	Key name	Function in test mode	Explanation
	PGM (PROGRAM)	Focus servo close	If Disc Tray 1 is closed, Disk Tray 1 is moved to the play position. Then the laser diode is lit up and the focus actuator is lowered, then raised slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled down, then the actuator is raised and lowered twice and returned to its original position.
▶	PLAY	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.
❚❚	PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.
⏮ / ◀◀	TRACK/ MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner periphery of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the pickup does not automatically stop at the mechanical end point in test mode, be careful with this operation.
▶▶ / ⏭	TRACK/ MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer periphery of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the pickup does not automatically stop at the mechanical end point in test mode, be careful with this operation.
■	STOP	Stop	Switches off all the servos and initializes. The pickup remains where it was when this key was pressed.
▲	OPEN/CLOSE DISC 1	Disc tray open/close	Opens/closes the disc tray. This key is a toggle key and open/close tray alternately.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.

PGM	Lights up the laser diode and closes the focus servo.
⇓	
PLAY ▶	Starts the spindle motor and closes the spindle servo.
⇓	
PAUSE ❚❚	Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus offset adjustment

● Objective	Sets the DC offset for the focus error amp.		
● Symptom when out of adjustment	The player does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS ERR). [Settings] 5 mV/division 10 ms/division DC mode	● Player state	Test mode, stopped (just the Power switch on)
		● Adjustment location	VR103 (FCS OFS)
		● Disc	None needed

[Procedure]

Adjust VR103 (FCS OFS) so that the DC voltage at TP1, Pin 6 (FCS ERR) is –50 ± 50 mV.

2. Grating adjustment

● Objective ● Symptom when out of adjustment	To align the tracking error generation laser beam spots to the optimum angle on the track Play does not start, track search is impossible, tracks are skipped.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK ERR) via a low pass filter. (See Figure 2) [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open Pickup grating adjustment slit 12 cm disc. (YEDS-7 can not be used.)

[Procedure]

1. Move the pickup to the outer edge of the disc with the TRACK/MANUAL SEARCH FWD ▶▶/▶▶| or |◀◀/◀◀ key so that the grating adjustment slit is at the outer edge of the disc where it can be adjusted.
2. Press the PGM key, then the PLAY ▶ key in that order to close the focus servo then the spindle servo.
3. Insert an ordinary screwdriver into the grating adjustment slit and adjust the grating to find the null point. For more details, see the next page.
4. If you slowly turn the screwdriver counterclockwise from the null point, the amplitude of the wave gradually increases, then if you continue turning the screwdriver, the amplitude of the wave becomes smaller again. Turn the screwdriver counterclockwise from the null point and set the grating to the first point where the wave amplitude reaches its maximum.

   Reference: Figure 3 shows the relation between the angle of the tracking beam with the track and the wave form.

   Note: The amplitude of the tracking error signal is about 3 Vp-p (when a 39 kΩ + 0.001 μF low pass filter is used). If this amplitude is extremely small (2 Vp-p or less), the objective lens may be dirty or the pickup malfunctioning. If the difference between the amplitude of the error signal at the innermost edge and outermost edge of the disc is more than 10%, the grating is not adjusted to the optimum point, so adjust it again.
5. Return the pickup to more or less midway across the disc with the TRACK/MANUAL SEARCH REV |◀◀/◀◀ key, press the PAUSE ▮▮ key and check that the track number and elapsed time are displayed on the front panel. If they are not displayed at this time or the elapsed time changes irregularly, check the null point and adjust the grating again.

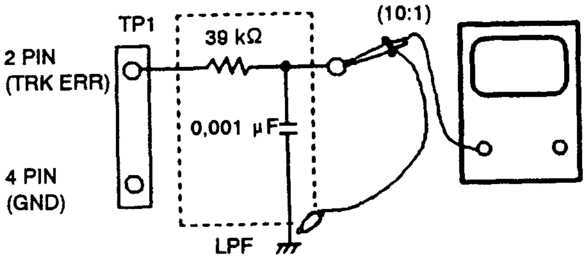
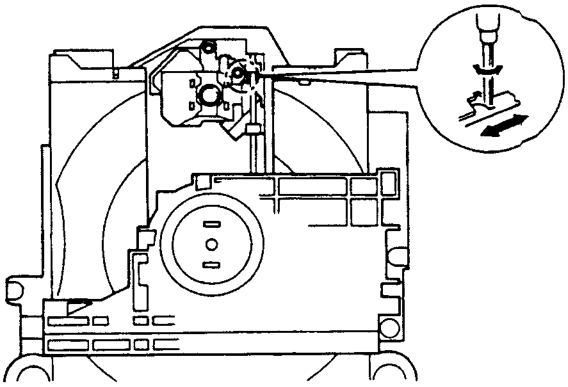


Figure 2



Adjustment Locations

[How to find the null point]

When you insert the regular screwdriver into the slit for the grating adjustment and change the grating angle, the amplitude of the tracking error signal at TP1 Pin 2 changes. Within the range for the grating, there are five or six locations where the amplitude of the wave reaches a minimum. Of these five or six locations, there is only one at which the envelope of the wave form is smooth. This location is where the three laser beams divided by the grating are all right above the same track. (See Figure 3.)
This point is called the null point. When adjusting the grating, this null point is found and used as the reference position.

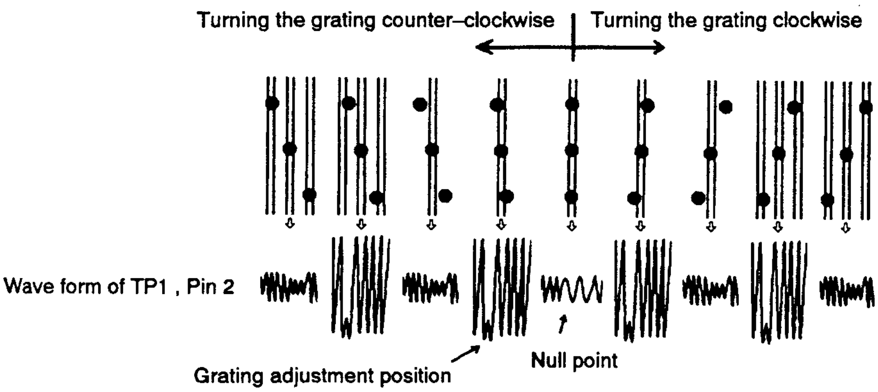
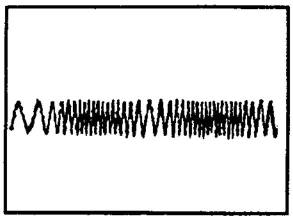
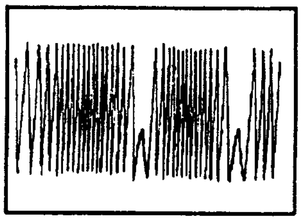

Turning the grating counter–clockwise
Turning the grating clockwise
Wave form of TP1 , Pin 2
Grating adjustment position
Null point

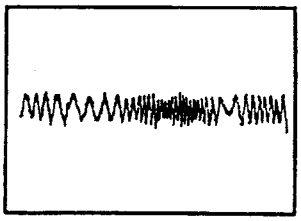
Figure 3



Nullo point waveform



Maximum amplitude waveform



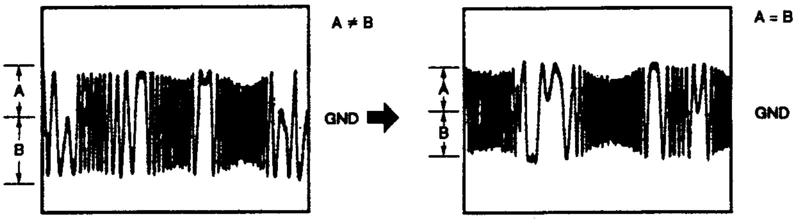
Waveform other than the null point

3. Tracking error balance adjustment

● Objective	To correct for the variation in the sensitivity of the tracking photodiode		
● Symptom when out of adjustment	Play does not start or track search is impossible		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK ERR). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state	Test mode, focus and spindle servos closed and tracking servo open
		● Adjustment location	VR102 (TRK BAL)
		● Disc	YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R = 35 mm) with the TRACK/MANUAL SEARCH FWD ▶▶/▶▶| or |◀◀/◀◀ key.
2. Press the PGM key, then the PLAY ▶ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Adjust VR102 (TRK BAL) so that positive amplitude and negative amplitude of the tracking error signal at TP1 Pin 2 (TRK ERR) are the same (in other words, so that there is no DC component).



When there is a DC component

When there is no DC component

4. Pickup radial/tangential tilt adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken; some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 20 mV/division 200 ns/division AC mode	● Player state	Test mode, play
		● Adjustment location	Pickup radial tilt adjustment screw and tangential tilt adjustment screw
		● Disc	12 cm disc. (YEDS-7 can not be used.)

[Procedure]

1. Move the pickup to the outer edge of the disc with the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key so that the radial/tangential tilt screws can be adjusted.
   Press the PGM key, the PLAY ▶ key, then the PAUSE ❚❚ key in that order to close the focus servo then the spindle servo and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with an M3 mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with an M3 mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 5).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.

Note: Radial and tangential mean the directions relative to the disc shown in Figure 4.

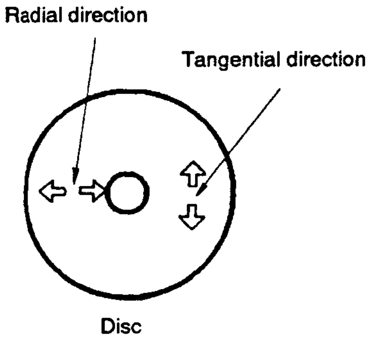
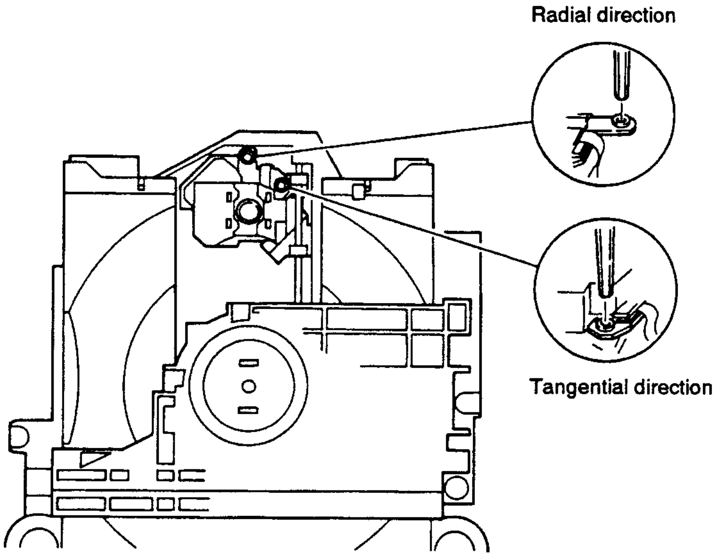


Figure 4



Adjustment Locations

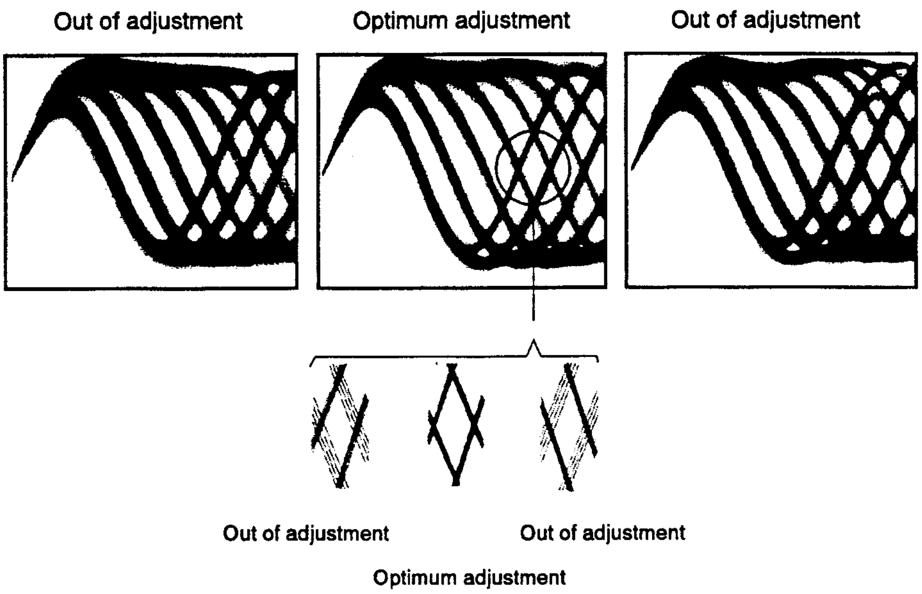

Out of adjustment
Optimum adjustment
Out of adjustment
Out of adjustment
Out of adjustment
Optimum adjustment

Figure 5 Eye Pattern

5. RF level adjustment

● Objective	To optimize the playback RF signal amplitude
● Symptom when out of adjustment	No play or no search

● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 50 mV/division 10 ms/division AC mode	● Player state	Test mode, play
		● Adjustment location	VR1 (laser power)
		● Disc	YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R = 35 mm) with the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key, then press the PGM key, then the PLAY ▶ key in that order to close the respective servos and put the player into play mode.
2. Adjust VR1 (laser power) so that the RF signal amplitude is 1.2 Vp-p ± 0.1V.

6. Focus servo loop gain adjustment

● Objective	To optimize the focus servo loop gain		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy		
● Measurement instrument connections	See Figure 6. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR152 (FCS GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▶▶/▶▶| or |◀◀/◀◀ key to move the pickup to halfway across the disc (R = 35 mm), then press the PGM key, the PLAY ▶ key, then the PAUSE ❚❚ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS GAN) so that the Lissajous wave form is symmetrical about the X axis and the Y axis.

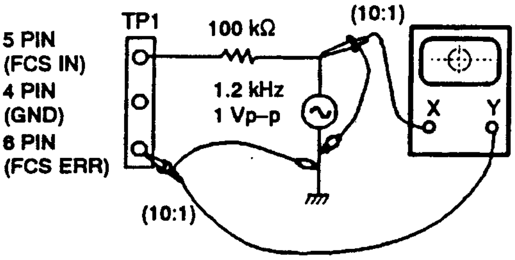
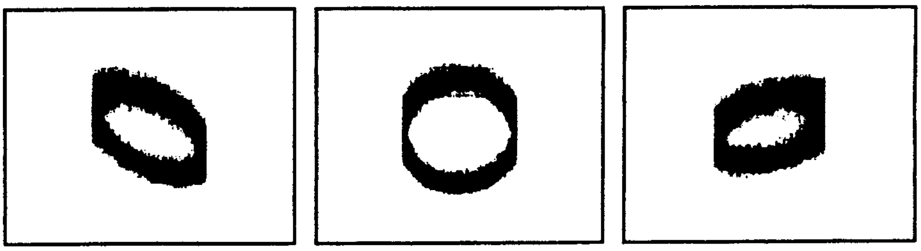


Figure 6

Focus Gain Adjustment



Higher gain　　Optimum gain　　Lower gain

7. Tracking servo loop gain adjustment

● Objective	To optimize the tracking servo loop gain		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 7.	● Player state	Test mode, play
	[Settings]	● Adjustment location	VR151 (TRK GAN)
	CH1 50 mV/division CH2 50 mV/division X-Y mode	● Disc	YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key to move the pickup to halfway across the disc (R = 35 mm), then press the PGM key, the PLAY ▶ key, then the PAUSE ❚❚ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK GAN) so that the Lissajous wave form is symmetrical about the X axis and the Y axis.

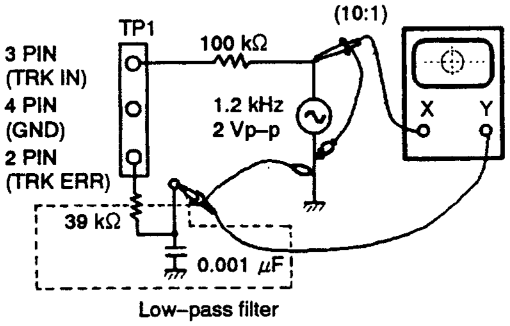
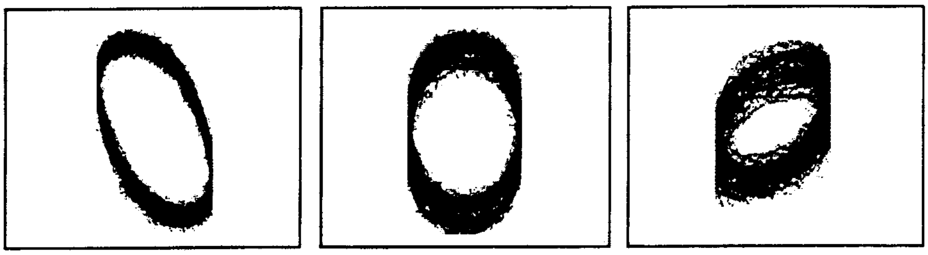


Figure 7

Tracking Gain Adjustment



Higher gain   Optimum gain   Lower gain

8. Focus error signal (focus S curve) verification

● Objective ● Symptom when out of adjustment	To judge whether the pickup is ok or not by observing the focus error signal. The pickup is judged from the amplitude of the tracking error signal (as discussed in the section on adjusting the tracking error balance) and the wave form for the focus error signal.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS ERR). [Settings] 100 mV/division 5 ms/division DC mode	● Player state	Test mode, stop
		● Adjustment location	None
		● Disc	YEDS-7

[Procedure]

1. Connect TP1 Pin 5 to ground.
2. Mount the disc.
3. While watching the oscilloscope screen, press the PGM key and observe the wave form in Figure 8 for a moment. Verify that the amplitude is at least 2.5 Vp-p and that the positive and negative amplitude are about equal. Since the wave form is only output for a moment when the PGM key is pressed, press this key over and over until you have checked the wave form.

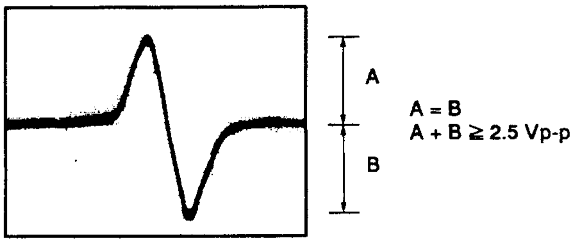


Figure 8

[Judging the pickup]

Do not judge the pickup until all the adjustments have been made correctly. In the following cases, there may be something wrong with the pickup.

1. The tracking error signal amplitude is extremely small (less than 2 Vp-p).
2. The focus error signal amplitude is extremely small (less than 2.5 Vp-p).
3. The positive and negative amplitudes of the focus error signal are extremely asymmetrical (2:1 ratio or more).
4. The RF signal is too small (less than 0.8 Vp-p) and even if VR1 is adjusted (laser power), the RF signal can not be brought upto the standard level.

2. BLOC CD

● POUR LES TYPES XD–Z54T ET XD–Z84T SEULEMENT

1. Méthodes de réglage

Si le lecteur CD est mal réglé, il risque de ne plus fonctionner normalement, voire ne plus fonctionner du tout, même si le capteur et la circuiterie en présentent aucune anomalie. Par conséquent, ajuster le lecteur correctement en suivant les démarches de réglage.

1–1 Points de réglage/Point et ordre de vérification

Etape	Point	Point d'essai	Emplacement du réglage
1	Réglage du décalage de la mise au point	TP1, Broche 6 (FCS. ERR)	VR103 (FCS. OFS)
2	Réglage du réseau de diffraction	TP1, Broche 2 (TRK. ERR)	Fente de réglage du réseau de diffraction
3	Réglage d'équilibrage d'erreur d'alignement	TP1, Broche 2 (TRK. ERR)	VR102 (TRK. BAL)
4	Réglage d'inclinaison radiale/tangentielle du capteur	TP1, Broche 1 (RF)	Vis de réglage d'inclinaison radiale, Vis de réglage d'inclinaison tangentielle
5	Réglage du niveau RF	TP1, Broche 1 (RF)	VR1 (niveau RF)
6	Réglage de gain de boucle asservie de la mise au point	TP1, Broche 5 (FCS. IN) TP1, Broche 6 (FCS. ERR)	VR152 (FCS. GAN)
7	Réglage de gain de boucle asservie de l'alignement	TP1, Broche 3 (TRK. IN) TP1, Broche 2 (TRK. ERR)	VR151 (TRK. GAN)
8	Vérification du signal d'erreur de la mise au point	TP1, Broche 6 (FCS. ERR)	———

● Tableau des abbréviations

FCS. ERR : erreur de mise au point
FCS. OFS : décalage de mise au point
TRK. ERR : erreur d'alignement
TRK. BAL : équilibrage d'erreur d'alignement
FCS. IN : mise au point correcte
TRK. IN : alignement correct

1–2 Intruments de mesure et outils

1. Oscilloscope cathodique à deux faisceaux (sonde 10:1)
2. Oscillateur de basse fréquence
3. Disque d'essai (YEDS-7)
4. Disque de 12 cm (avec au moins 70 minutes d'enregistrement)
5. Filtre passe-bas (39 kΩ + 0,001 μF)
6. Résistance (100 kΩ)
7. Clé hexagonale (M3 mm)
8. Outils conventionnels

1-3 Point d'essai et positions de réglage de la résistance variable

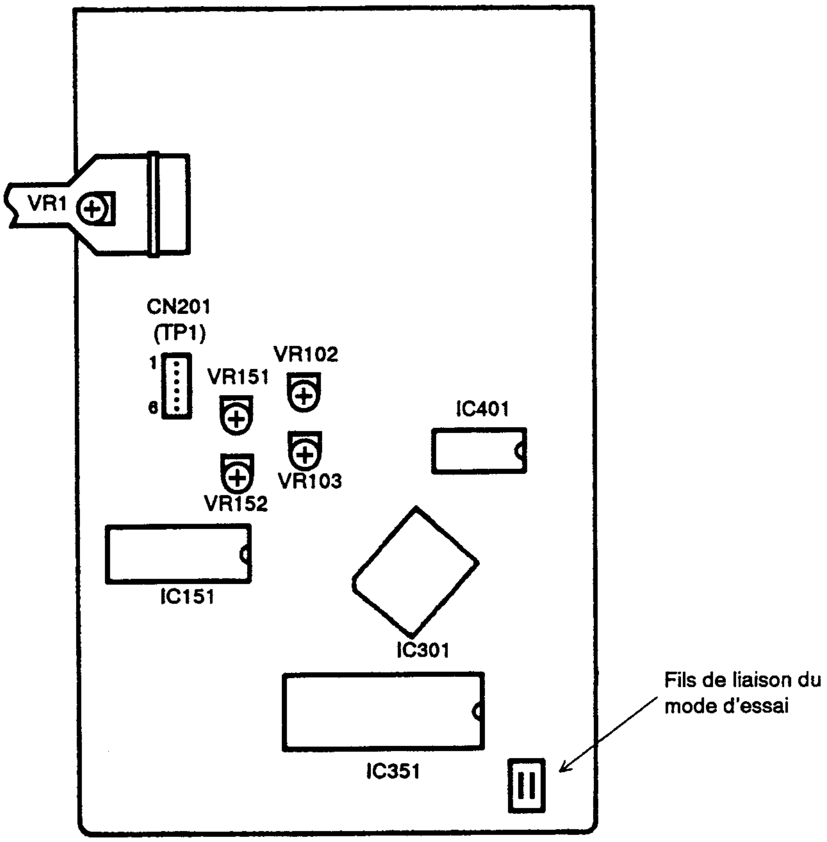


Figure 1 Emplacement des Réglages

1-4 Remarques

1. Utiliser une sonde 10:1 pour l'oscilloscope.
2. Toutes les positions (réglages) des boutons de l'oscilloscope, dans les démarches de réglage, sont conçues pour l'usage d'une sonde 10:1.

1-5 Mode d'essai

Ces modèles sont munis d'un mode d'essai, de façon que les réglages requis à la réparation puissent être effectués aisément. Quand ces modèles sont en mode d'essai, les touches du panneau avant ne fonctionnent pas comme à l'ordinaire. Les réglages et les vérifications peuvent s'effectuer par l'enclenchement de ces touches, à conditions de suivre les démarches requises. Dans le cas de ces modèles, tous les réglages sont réalisés en mode d'essai.

[Mise en mode d'essai]

Voici la manière de mettre le modèle en mode d'essai.
1. Commuter l'interrupteur d'alimentation sur arrêt.
2. Court-circuiter les fils de liaison du mode d'essai. (voir Figure 1.)
3. Commuter l'interrupteur d'alimentation sur marche.

Quand le mode d'essai est correctement réglé, l'affichage est différent de celui qui apparaît généralement à la mise sous tension. Si l'affichage reste le même, le mode d'essai n'a pas été réglé correctement. Dans ce cas, répéter les étapes 1 à 3.

[Pour sortir du mode d'essai]

Voici la procédure pour sortir du mode d'essai.

1. Appuyer sur la touche STOP pour arrêter toutes les opérations.
2. Sur le panneau avant, commuter l'interrupteur d'alimentation sur arrêt.

[Fonctionnement des touches en mode d'essai]

Code	Nom de la touche	Fonction en mode d'essai	Explications
	PGM (PROGRAMME)	Fermeture du circuit asservi de la mise au point	Si le plateau n° 1 est fermé, il se place en mode de lecture. Ensuite la diode laser s'allume et l'actuateur de la mise au point s'abaisse, puis se relève lentement et le circuit servo de la mise au point se ferme au point où la lentille de l'objectif se focalise sur le disque. Quand l'appareil est dans cet état, si l'on fait légèrement tourner à la main le disque arrêté, le bruit produit par le circuit servo de la mise au point sera audible. Si ce bruit est perçu, le circuit servo de la mise au point fonctionne correctement. Si cette touche est enclenchée et qu'aucun disque n'est installé, la diode laser s'allume, l'actuateur de la mise au point s'abaisse, se relève, puis s'abaisse une deuxième fois et enfin, revient à sa position de départ.
►	PLAY	Asservissement de rotation en service	Démarre le moteur de rotation dans le sens des aiguilles d'une montre, quand la rotation du disque atteint la vitesse prescrite (environ 500 tours/min à la circonférence interne) et place le circuit servo de rotation dans une boucle fermée. Attention. Si cette touche est enfoncée et qu'un disque n'est pas installé, le moteur de rotation va tourner á la vitesse maximum. Si le circuit servo de la mise au point ne passe pas comme prévu dans une boucle fermée ou que la diode laser brille dans le miroir à la périphérie externe du disque, le même symptôme se produit.
❚❚	PAUSE	Ouverture/Fermeture du circuit servo de l'alignement	Le fait d'appuyer sur cette touche quand le circuit servo de la mise au point et de la rotation fonctionnent correctement en boucles fermées, place le circuit servo de l'alignement dans une boucle fermée, fait apparaître, sur le panneau avant, le numéro de la piste en cours de lecture et la durée écoulée, puis sort le signal de lecture. Si la durée écoulée n'est pas affichée ou n'est pas correctement calculée, ou si la reproduction sonore est anormale, il se peut que la diode laser s'active dans la section dépourvue de signaux enregistrés, au bord externe du disque, qu'un ajustement quelconque soit déréglé, ou qu'un autre problème se manifeste. Cette touche est de type à bascule et ouvre/ferme alternativement le circuit servo de l'alignement. Cette touche est inopérante si un disque n'est pas installé.
⏮/ ◀◀	TRACK/ MANUAL SEARCH REV	Inversion du chariot (vers l'intérieur)	Déplace le capteur vers la périphérie interne du disque. Quand cette touche est enclenchée et que le circuit servo de l'alignement travaille en boucle fermée, celui-ci change automatiquement dans une boucle ouverte. Comme le capteur ne s'arrête pas automatiquement au point de fin mécanique du mode d'essai, effectuer cette démarche avec précaution.
▶▶/ ⏭	TRACK/ MANUAL SEARCH FWD	Inversion du chariot (vers l'extérieur)	Déplace le capteur vers la périphérie externe du disque. Quand cette touche est enclenchée et que le circuit servo de l'alignement travaille en boucle fermée, celui-ci change automatiquement dans une boucle ouverte. Comme le capteur ne s'arrête pas automatiquement au point de fin mécanique du mode d'essai, effectuer cette démarche avec précaution.
■	STOP	Arrêt	Met tous les circuits servo hors service et les initialise. Le capteur reste là où il était quand cette touche a été enclenchée.
▲	OPEN/CLOSE DISC 1	Ouverture/Fermeture	Ouvre/Ferme le plateau à disque. Cette touche est de type à bascule et ouvre/ferme alternativement le plateau.

[Lecture de disque en mode d'essai]

En mode d'essai, comme les circuits servo fonctionnent de manière indépendante, la lecture d'un disque exige que les touches soient enclenchées dans l'ordre prescrit, afin de fermer les circuits servo.
Voici l'ordre d'enclenchement des touches pour reproduire un disque en mode d'essai.

PGM	Allume la diode laser et ferme le circuit servo de la mise au point.
⇓	
PLAY ▶	Démarre le moteur de rotation et ferme le circuit servo de la rotation.
⇓	
PAUSE ❚❚	Ferme le circuit servo de l'alignement.

Attendre 2 à 3 secondes entre chaque opération.

1. Réglage du décalage de la mise au point

● Objectif	Règle le décalage CC de l'amplificateur d'erreur de mise au point.		
● Symptôme quand déréglé	Le lecteur ne procède plus à la mise au point et le signal RF n'est pas clair.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 6 (FCS ERR).	● Etat du lecteur	Mode d'essai, arrêté (juste l'interrupteur d'alimentation commuté sur marche)
	[Réglages] 5 mV/division 10 ms/division mode CC	● Emplacement du réglage	VR103 (FCS OFS)
		● Disque	Aucun requis

[Marche à suivre]

Ajuster VR103 (FCS OFS) de façon que la tension à TP1 broche 6 (FCS ERR) soit –50 ± 50 mV.

2. Réglage du réseau de diffraction

● Objectif	Pour aligner les points du rayon laser producteur d'erreur d'alignement sur l'angle optimum de la piste		
● Symptôme quand déréglé	La lecture ne commence pas, la recherche de piste est impossible, les pistes sont sautées.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 2 (TRK ERR) via un filtre passe-bas. (Voir Figure 2)	● Etat du lecteur	Mode d'essai, circuits servo de la mise au point et de la rotation fermés, circuit servo de l'alignement ouvert
	[Réglages] 50 mV/division 5 ms/division mode CC	● Emplacement du réglage	Fente de réglage du réseau de diffraction du capteur
		● Disque	Disque de 12 cm. (Il est impossible d'employer le disque YEDS-7).

[Marche à suivre]

1. Déplacer le capteur sur le bord externe du disque par la touche TRACK/ MANUAL SEARCH FWD ▶▶/▶▶| ou la touche |◀◀/◀◀, de façon que la fente de réglage du réseau de diffraction se situe sur bord extérieur du disque, où elle peut être réglée.
2. Appuyer sur la touche PGM, puis sur la touche PLAY ▶, dans cet ordre, pour fermer le circuit servo de la mise au point, puis celui de la rotation.
3. Insérer un tournevis ordinaire dans le réseau de diffraction pour trouver le point zéro. Pour plus de détails, voir page suivante.
4. Si l'on tourne lentement le tournevis dans le sens contraire des aiguilles d'une montre à partir du point zéro, l'amplitude de l'onde augmente graduellement et si l'on continue à tourner le tournevis, l'amplitude de l'onde diminue de nouveau. Tourner le tournevis dans le sens contraire des aiguilles d'une montre à partir du point zéro et régler le réseau de diffraction au premier point où l'amplitude de l'onde atteint son maximum.

   Référence: La Figure 3 illustre la relation entre l'angle du faisceau de l'alignement et la piste et la forme d'onde.

   Remarque: L'amplitude du signal d'erreur d'alignement se situe aux environs de 3 Vc-c (quand un filtre passe-bas de 39 kΩ + 0,001 µF est utilisé). Si cette amplitude est extrêmement petite (2 Vc-c ou moins), la lentille de l'objectif risque alors de s'encrasser ou le capteur risque de mal fonctionner. Si la différence entre l'amplitude du signal d'erreur au bord le plus intérieur et au bord le plus extérieur du disque est supérieure à 10%, ceci signifie que le réseau de diffraction n'est pas réglé à son point optimum. Dans ce cas, recommencer le réglage.
5. Replacer le capteur plus ou moins à mi-chemin sur le disque par la touche TRACK/ MANUAL SEARCH REV |◀◀/◀◀, appuyer sur la touche PAUSE ❚❚ et vérifier que le numéro de piste et la durée écoulée sont affichés sur le panneau avant. Si ces paramètres n'apparaissent pas ce moment, ou que la durée écoulée change de manière irrégulière, vérifier le point zéro et recommencer le réglage du réseau de diffraction.

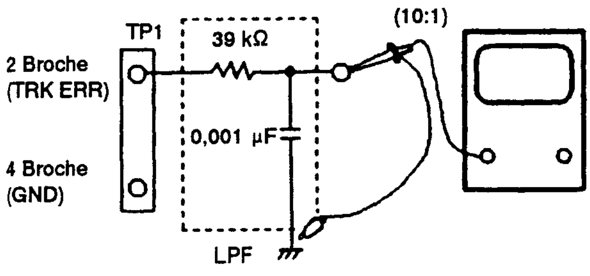
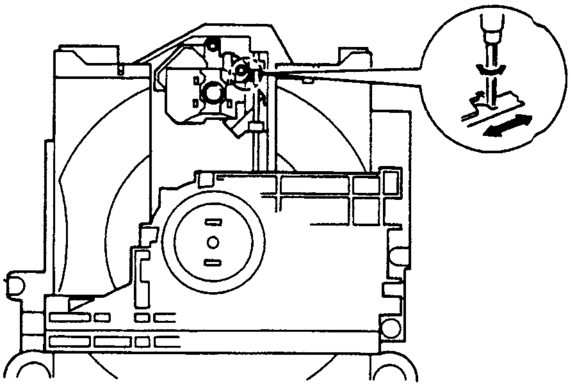


Figure 2



Emplacement des Réglages

[Repérage du point zéro]

Quand le tournevis est introduit dans la fente de réglage du réseau de diffraction et que l'angle du réseau de diffraction est modifié, l'amplitude du signal d'erreur d'alignement à TP1, broche 2, change. Dans les limites de la plage du réseau de diffraction, il existe six emplacements où l'amplitude de l'onde atteint le minimum. Mais l'enveloppe de la forme d'onde n'est régulière qu'à un seul de ces emplacements. Ce point se situe à l'endroit où les trois rayons laser, divisés par le réseau de diffraction, se situent exactement sur la même piste (voir Figure 3).
Ce point s'appelle le point zéro. Lors du réglage du réseau de diffraction, ce point zéro est repéré et utilisé comme position de référence.

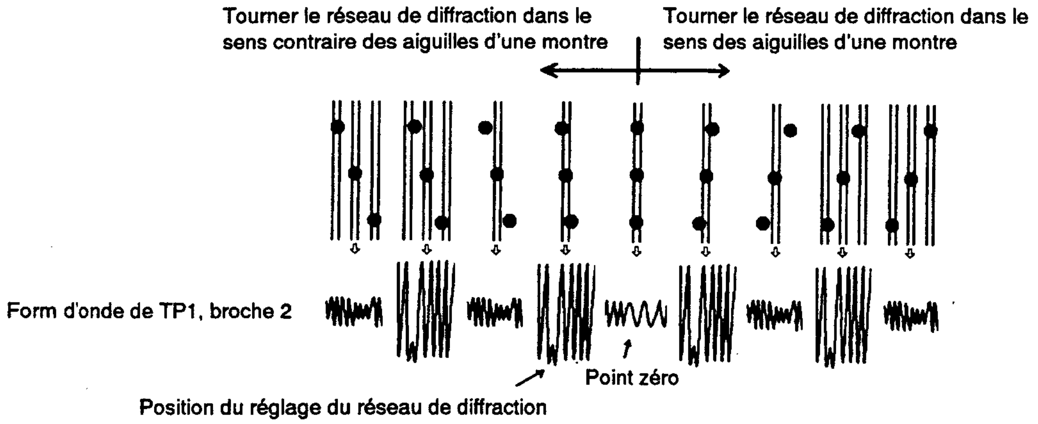
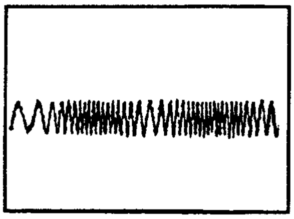
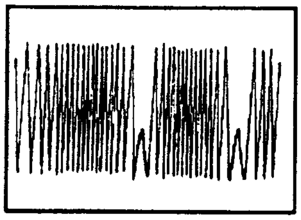

Tourner le réseau de diffraction dans le sens contraire des aiguilles d'une montre
Tourner le réseau de diffraction dans le sens des aiguilles d'une montre
Form d'onde de TP1, broche 2
Point zéro
Position du réglage du réseau de diffraction

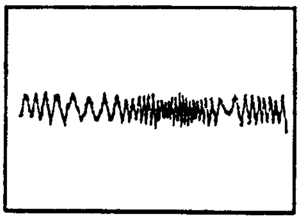
Figure 3



Forme d'onde du point zéro



Forme d'onde d'amplitude maximum



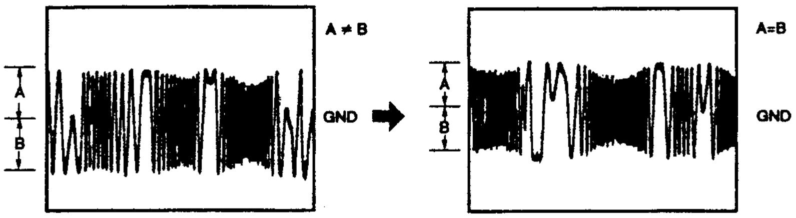
Forme d'onde autre que du point zéro

3. Réglage d'équilibrage d'erreur d'alignement

● Objectif	Pour corriger la variation de sensibilité de la photodiode d'alignement		
● Symptôme quand déréglé	La lecture ne commence pas, la recherche de piste est impossible.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 2 (TRK ERR).	● Etat du lecteur	Mode d'essai, circuits servo de la mise au point et de la rotation fermés, circuit servo de l'alignement ouvert
	[Réglages] 50 mV/division 5 ms/division mode CC	● Emplacement du réglage	VR102 (TRK BAL)
		● Disque	YEDS-7

[Marche à suivre]

1. Déplacer le capteur à mi-chemin sur le disque (R = 35 mm) par la touche TRACK/ MANUAL SEARCH FWD ▶▶/▶▶| ou |◀◀/◀◀.
2. Appuyer sur la touche PGM, puis sur la touche PLAY ▶, dans cet ordre, pour fermer le circuit servo de la mise au point, puis celui de la rotation.
3. Aligner la ligne lumineuse (masse) au centre de l'écran de l'oscilloscope et placer celui-ci en mode CC.
4. Ajuster VR102 (TRK BAL) de façon que l'amplitude positive et l'amplitude négative du signal d'erreur d'alignement à TP1, broche 2 (TRK ERR) soient identiques (c'est-à-dire, qu'il n'y ait aucun composant CC).



S'il y a un composant CC — S'il n'y a pas de composant CC

4. Réglage d'inclinaison radiale/tangentielle du capteur

● Objectif	Pour régler l'angle du capteur par rapport au disque, de façon que les rayons laser frappent verticalement le disque et permettre ainsi la lecture optimum des signaux RF.		
● Symptôme quand déréglé	Son interrompu; certains disques peuvent être lus et pas d'autres.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 1 (RF).	● Etat du lecteur	Mode d'essai, lecture
	[Réglages] 20 mV/division 200 ns/division mode CA	● Emplacement du réglage	Vis de réglage d'inclinaison radiale Vis de réglage d'inclinaison tangentielle
		● Disque	Disque de 12 cm. (Il est impossible d'employer le disque YEDS-7).

[Marche à suivre]

1. Déplacer le capteur sur le bord externe du disque par la touche TRACK/ MANUAL SEARCH FWD ►► / ►►| ou |◄◄ / ◄◄, de façon que les vis de réglage d'inclinaison radiale et tangentielle puissent être réglées.

   Appuyer sur la touche PGM, PLAY ► et PAUSE ▮▮ dans cet ordre, afin de fermer le circuit servo de la mise au point, puis celui de la rotation et placer le lecteur en mode de lecture.

2. D'abord, ajuster la vis d'inclinaison radiale à l'aide d'une clé hexagonale M de 3 mm, de façon que le motif en oeil (c'est-à-dire, le diamant au centre du signal RF) soit le plus clairement visible.

3. Ensuite, ajuster la vis d'inclinaison tangentielle à l'aide d'une clé hexagonale M de 3 mm, de façon que le motif en oeil (c'est-à-dire, le diamant au centre du signal RF) soit le plus clairement visible (Figure 5).

4. Ajuster de nouveau la vis d'inclinaison radiale et la vis d'inclinaison tangentielle de façon que le motif en oeil soit le plus clairement visible. Le cas échéant, régler les deux vis de façon que le motif en oeil soit le plus clairement visible.

   Remarque: "Radial" et "tangentiel" se rapportent aux sens par rapport au disque illustré à la Figure 4.

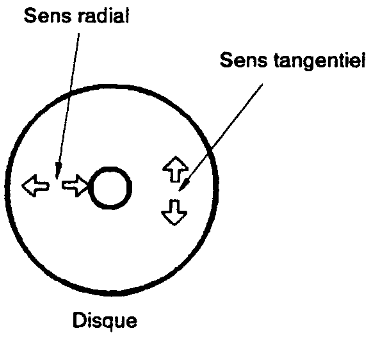
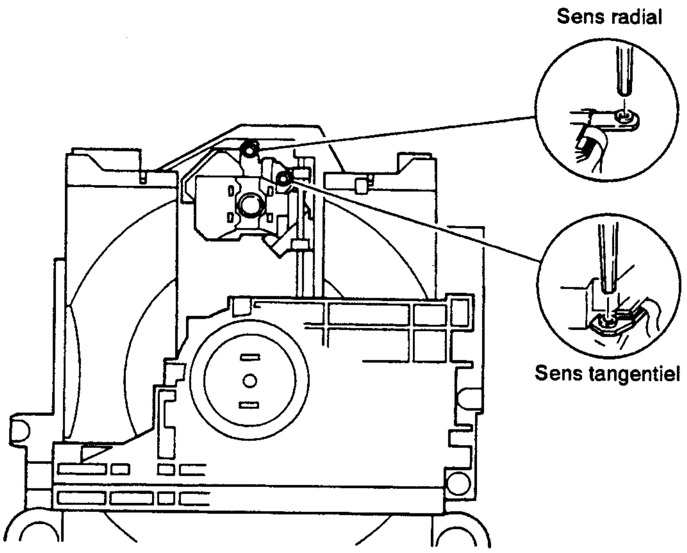


Figure 4



Emplacements des Réglages

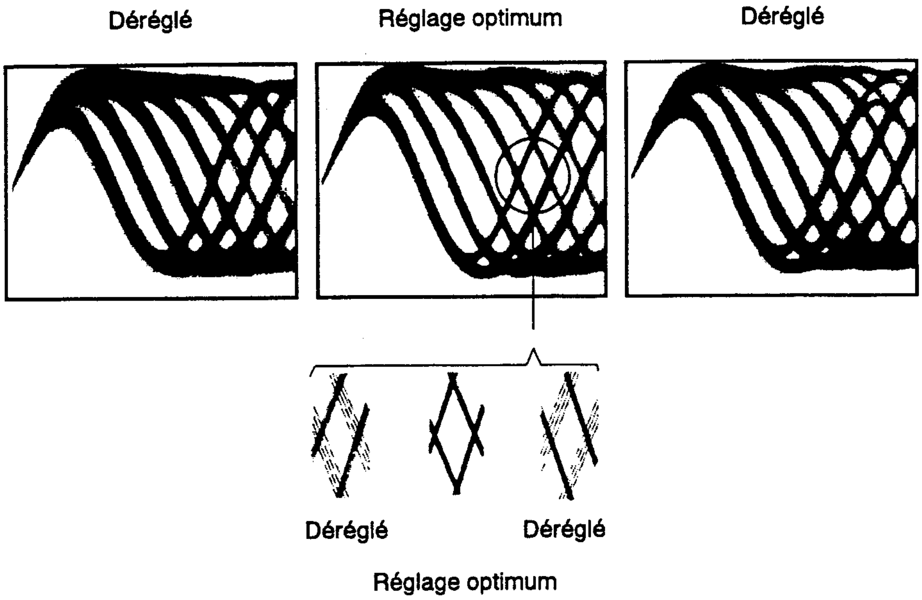

Déréglé
Réglage optimum
Déréglé
Déréglé
Déréglé
Réglage optimum

Figure 5 Motif en oeil

5. Réglage du niveau RF (niveau RF)

● Objectif	Pour optimaliser l'amplitude du signal RF de lecture		
● Symptôme quand déréglé	Pas de lecture ni de recherche		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 1 (RF)	● Etat du lecteur	Mode d'essai, lecture
	[Rélages] 50 mV/division 10 ms/division mode CA	● Emplacement du réglage	VR1 (alimentation du laser)
		● Disque	YEDS-7

[Marche à suivre]

1. Placer le capteur à mi-chemin sur le disque (R = 35 mm) à l'aide de la touche TRACK/ MANUAL SEARCH FWD▶▶/▶▶| ou |◀◀/◀◀. Ensuite, appuyer sur la touche PGM puis sur la touche PLAY ▶, dans cet ordre, pour fermer les circuits servo respectifs et mettre le lecteur en mode de lecteur.
2. Ajuster VR1 (alimentation du laser) de façon que l'amplitude du signal RF atteigne 1,2 Vc-c ± 0,1V.

6. Réglage de gain de boucle asservie de la mise au point

● Objectif	Pour optimaliser le gain de la boucle d'asservissement de la mise au point.		
● Symptôme quand déréglé	La lecture ne commence pas ou l'actuateur de la mise au point est parasité.		
● Raccordement des instruments de mesure	Voir Figure 6 [Réglages] CAN. 1 / CAN. 2 20 mV/division / 5 mV/division Mode X-Y	● Etat du lecteur ● Emplacement du réglage ● Disque	Mode d'essai, lecture VR152 (FCS GAN) YEDS-7

[Marche à suivre]

1. Régler la sortie du générateur AF sur 1,2 kHz et 1 Vc-c.
2. Appuyer sur la touche TRACK/ MANUAL SEARCH FWD ▶▶ / ▶▶| ou la touche |◀◀ / ◀◀ pour placer le capteur à mi-chemin sur le disque (R = 35 mm). Ensuite, appuyer sur la touche PGM, la touche PLAY ▶, puis sur la touche PAUSE ❚❚, dans cet ordre, pour fermer les circuits servo respectifs et placer le lecteur en mode de lecture.
3. Ajuster VR152 (FSC GAN) de façon que la forme d'onde de Lissajous soit symétrique aux alentours de l'axe X et l'axe Y.

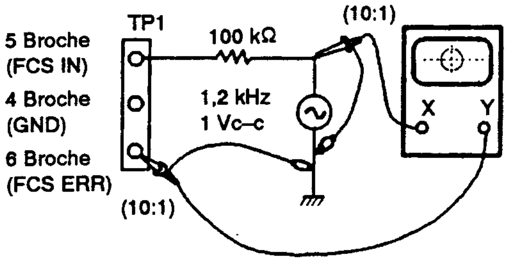
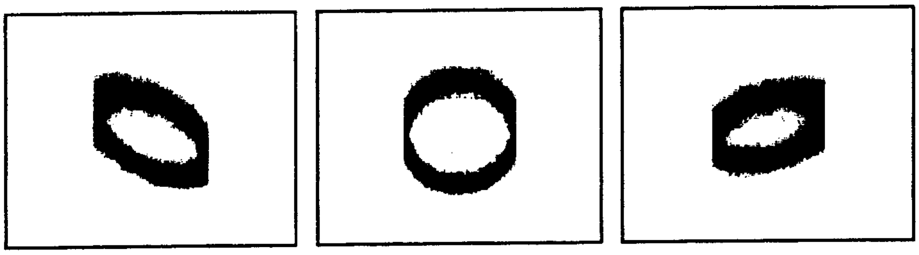


Figure 6

Adjustment de gain de mise au point



Gain supérieur

Gain optimum

Gain inférieur

7. Réglage de gain de boucle asservie de l'alignement

● Objectif	Pour optimaliser le gain de la boucle d'asservissement de l'alignement.		
● Symptôme quand déréglé	La lecture ne commence pas, l'actuateur est parasité pendant la recherche, ou des pistes sont sautées.		
● Raccordement des instruments de mesure	Voir Figure 7 [Réglages] CAN. 1 50 mV/division Mode X-Y CAN. 2 50 mV/division	● Etat du lecteur ● Emplacement du réglage ● Disque	Mode d'essai, lecture VR151 (TRK GAN) YEDS-7

[Marche à suivre]

1. Régler la sortie du générateur AF sur 1,2 kHz et 1 Vc-c.
2. Appuyer sur la touche TRACK/ MANUAL SEARCH FWD ▶▶/▶▶| ou la touche |◀◀/◀◀ pour placer le capteur à mi-chemin sur le disque (R = 35 mm). Ensuite, appuyer sur la touche PGM, la touche PLAY ▶, puis sur la touche PAUSE ▮▮, dans cet ordre, pour fermer les circuits servo respectifs et placer le lecteur en mode de lecture.
3. Ajuster VR151 (TRK GAN) de façon que la forme d'onde de Lissajous soit symétrique aux alentours de l'axe X et l'axe Y.

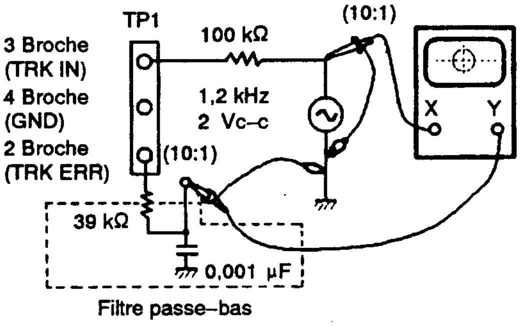
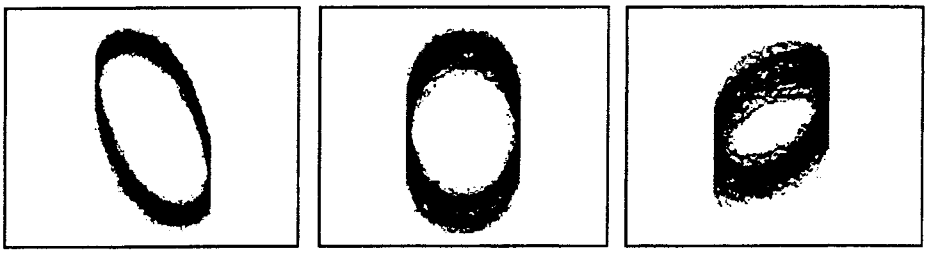


Figure 7

Adjustment de gain d'alignement



Gain supérieur Gain optimum Gain inférieur

8. Vérification du signal d'erreur de la mise au point

● Objectif	Pour juger si le capteur est bon ou pas, en observant le signal d'erreur de la mise au point. L'état du capteur s'évalue à partir de l'amplitude du signal d'erreur d'alignement (comme décrit dans le paragraphe relatif à l'équilibrage d'erreur d'alignement), ainsi qu'à partir de la forme d'onde du signal d'erreur de mise au point.		
● Symptôme quand déréglé			
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 6 (FCS ERR). [Réglages] 100 mV/division 5 ms/division mode CC	● Etat du lecteur	Mode de test, arrêt
		● Emplacement du réglage	Aucun
		● Disque	YEDS-7

[Marche à suivre]

1. Raccorder TP1, broche 5 à la masse.
2. Installer le disque.
3. Tout en regardant l'écran de l'oscilloscope, appuyer sur la touche PGM et observer la forme d'onde de la Figure 8, pendant quelques instants.Vérifier que l'amplitude atteint au moins 2,5 Vc-c et que les amplitudes positive et négatives soient égales. Comme la forme ne sort que pour un moment, quand la touche PGM est enclenchée, appuyer sur à plusieurs reprises sur cette touche, jusqu'à ce que la forme d'onde ait été vérifiée.

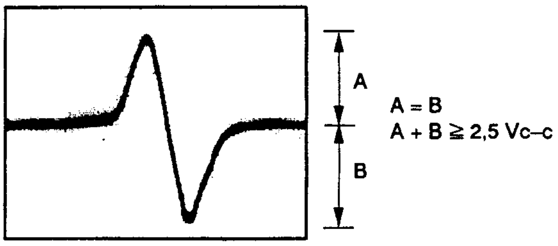


Figure 8

[Evaluation du capteur]

Ne pas tenter d'évaluer l'état du capteur tant que tous les réglages ne sont pas corrects. Les cas suivants témoignent de l'anomalie du capteur.

1. L'amplitude du signal d'erreur d'alignement est extrêmement petite (inférieure à 2 Vc-c).
2. L'amplitude du signal d'erreur de mise au point est extrêmement petite (inférieure à 2,5 Vc-c).
3. Les amplitudes positive et négative du signal d'erreur de mise au point sont extrêmement asymétriques (taux 2:1 ou plus).
4. Le signal RF est trop petit (inférieur à 0,8 Vc-c) et même si VR1 (alimentation du laser) est ajustée, le signal RF ne peut être élevé au niveau standard.

2. BLOQUE CD

● SOLO PARA LOS TIPOS XD–Z54T Y XD–Z84T

1. Métodos de ajuste

Si un reproductor de discos compactos se ajusta incorrecta o inadecuadamente, puede funcionar mal o no trabajar incluso aunque no exista ningún problema en el captor ni en los circuitos. Ajuste correctamente siguiendo el procedimiento de ajuste.

1-1 Ítemes de ajuste/verificación y orden

Paso	Ítem	Punto de prueba	Lugar de ajuste
1	Ajuste del descentramiento de enfoque	TP1, Patilla 6 (FCS. ERR)	VR103 (FCS. OFS)
2	Ajuste de retícula	TP1, Patilla 2 (TRK. ERR)	Ranura de ajuste de retícula
3	Ajuste del equilibrio de ajuste de seguimiento	TP1, Patilla 2 (TRK. ERR)	VR102 (TRK. BAL)
4	Ajuste de la inclinación en sentido radial/tangencial del captor	TP1, Patilla 1 (RF)	Tornillo de ajuste de la inclinación radial Tornillo de ajuste de la inclinación tangencial
5	Ajuste del nivel de RF	TP1, Patilla 1 (RF)	VR1 (Nivel de RF)
6	Ajuste de la ganancia del bucle del servo de enfoque	TP1, Patilla 5 (FCS. IN) TP1, Patilla 6 (FCS. ERR)	VR152 (FCS. GAN)
7	Ajuste de la ganancia del bucle del servo de seguimiento	TP1, Patilla 3 (TRK. IN)) TP1, Patilla 2 (TRK. ERR)	VR151 (TRK. GAN)
8	Verificación de la señal de error de enfoque	TP1, Patilla 6 (FCS. ERR)	———

● Tabla de abreviaturas

FCS. ERR : Error de enfoque
FCS. OFS : Descentramiento de enfoque
TRK. ERR : Error de seguimiento
TRK. BAL : Equilibrio de seguimiento
FCS. IN : Entrada de enfoque
TRK. IN : Entrada de seguimiento

1-2 Instrumentos y herramientas de medición

1. Osciloscopio de doble traza (Sonda de 10:1)
2. Oscilador de baja frecuencia
3. Disco de prueba (YEDS-7)
4. Disco de 12 cm (con 70 minutos de grabación por lo menos)
   Para el tipo de reproducción múltiple de disco compacto, emplee solamente el disco de prueba YEDS-7.
5. Filtro de paso bajo (39 kΩ + 0,001 μF)
6. Resistor (100 kΩ)
7. Llave hexagonal (M3 mm)
8. Herramientas estándar

1-3 Ubicación de los puntos de prueba y los resistores variables de ajuste

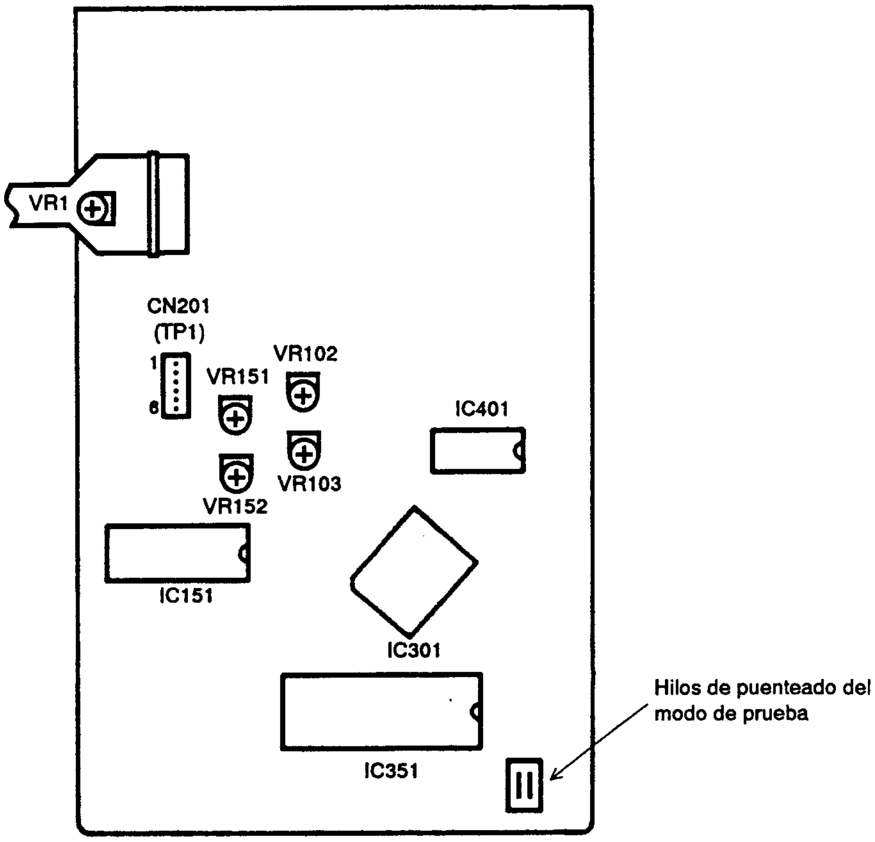


Figura 1 Lugares de Ajuste

1-4 Notas

1. Emplee una sonda de 10:1 para el osciloscopio.
2. Todas las posiciones de los mandos (ajustes) para el osciloscopio de los procedimientos de ajuste son para cuando se emplee la sonda de 10:1.

1-5 Modo de prueba

Estos modelos poseen un modo de prueba que permite realizar fácilmente los ajustes y las comprobaciones requeridos para el servicio. Cuando estos modelos estén en el modo de prueba, las teclas del panel frontal trabajarán de forma diferente a la normal. Los ajustes y las comprobaciones podrán realizarse accionando estas teclas de acuerdo con el procedimiento correcto. Para estos modelos, todos los ajustes se realizarán en el modo de prueba.

[Puesta de estos modelos en el modo de prueba]

A continuación se indica cómo poner estos modelos en el modo de prueba.

1. Ponga en OFF el interruptor de alimentación.
2. Cortocircuite los hilos de puenteado de modo de prueba. (Consulte la figura 1.)
3. Ponga en ON el interruptor de alimentación.

Cuando haya ajustado correctamente el modo de prueba, la visualización será diferente a la obtenida normalmente al conectar la alimentación. Si la visualización sigue siendo la normal, el modo de prueba no se habrá ajustado normalmente, por lo que tendrá que repetir los pasos 1 a 3.

[Desactivación del modo de prueba]

A continuación se indica el procedimiento para desactivar el modo de prueba.

1. Presione la tecla STOP y cese todas las operaciones.
2. Ponga en OFF el interruptor de alimentación del panel frontal.

[Operaciones de teclas en el modo de prueba]

Código	**Nombre de la tecla**	**Función en el modo de prueba**	**Explicación**
	PGM (PROGRAMA)	Cierre del servo de enfoque	Si la bandeja de disco 1 está cerrada, ésta se moverá hasta la posición de reproducción. Después el diodo láser se encenderá y el actuador de enfoque descenderá, después se elevará lentamente, y el servo de enfoque se cerrará en el punto en el que el objetivo se enfoque sobre el disco. Con el reproductor en este estado, si gira ligeramente con la mano el disco parado podrá oír el sonido del servo de enfoque. Si puede oír este sonido, el servo de enfoque estará funcionando correctamente. Si presiona esta tecla sin disco montado, el diodo láser se encenderá, el actuador de enfoque se verá empujado hacia abajo, y después se levantará y descenderá dos veces, y volverá a su posición original.
▶	PLAY	Activación del servo del eje	Pondrá en marcha el motor del eje haciéndolo girar hacia la derecha y después la rotación del disco alcanzará la velocidad prescrita (unas 500 rpm en la periferia interior), y pondrá el servo del eje en un bucle cerrado. Tenga cuidado. Si presiona esta tecla cuando no haya disco montado, el motor del eje girará a la velocidad máxima. Si el servo de enfoque no pasa correctamente a un bucle cerrado, o si el haz lasérico incide en la sección del espejo en el la periferia del disco, ocurrirá el mismo síntoma.
❚❚	PAUSE	Apertura/cierre del servo de seguimiento	Si presiona esta tecla cuando el servo de enfoque y el servo del eje están funcionando correctamente en bucles cerrados, el servo de seguimiento se pondrá en bucle cerrado, en el panel frontal se visualizarán el número de canción que esté reproduciéndose y el tiempo transcurrido, y se producirá la salida de la señal de reproducción. Si el tiempo transcurrido no se visualiza o no se cuenta correctamente, o si el sonido no se reproduce correctamente, es posible que el rayo lasérico esté incidiendo en la sección sin sonido grabado en el borde exterior del disco, o que exista algún otro problema. Esta tecla es basculante (de acción alternativa) y abre/cierra el servo de seguimiento alternativamente. Esta tecla no funcionará cuando no haya disco montado.
⏮/ ⏪	TRACK/ MANUAL SEARCH REV	Retroceso del carro (hacia adentro)	Moverá la posición del captor hacia el diámetro interior del disco. Si presiona esta tecla con el servo de seguimiento en bucle cerrado, dicho bucle pasará automáticamente a bucle abierto. Como el captor no se para automáticamente en el punto final mecánico en el modo de prueba, tenga cuidado cuando realice esta operación.
⏩/ ⏭	TRACK/ MANUAL SEARCH FWD	Avance del carro (hacia afuera)	Moverá la posición del captor hacia la periferia del disco. Si presiona esta tecla con el servo de seguimiento en bucle cerrado, dicho bucle pasará automáticamente a bucle abierto. Como el captor no se para automáticamente en el punto final mecánico en el modo de prueba, tenga cuidado cuando realice esta operación.
■	STOP	Parada	Desactivará todos los servos e inicializará la unidad. El captor permanecerá donde estaba cuando se presionó esta tecla.
▲	OPEN/CLOSE DISC1	Apertura/cierre de la bandeja del disco	Abrirá/cerrará la bandeja del disco. Esta tecla es basculante (de acción alternativa) y abre/cierra la bandeja alternativamente.

[Cómo reproducir un disco en el modo de prueba]

En el modo de prueba, como los servos funcionan independientemente, la reproducción de un disco requiere el que usted emplee las teclas en el orden correcto para cerrar los servos.
A continuación se indica la secuencia de operación de teclas para reproducir un disco en el modo de prueba.

PGM	Hará que se encienda el diodo láser y cerrará el servo de enfoque.
⇓	
PLAY ►	Pondrá en marcha el motor del eje y hará que se cierre el servo del eje.
⇓	
PAUSE ▮▮	Cerrará el servo de seguimiento.

Espere de 2 a 3 segundos por lo menos entre cada una de estas operaciones.

1. Ajuste del descentramiento del enfoque

● Objetivo	Ajuste de la tensión de CC para el amplificador de error de enfoque.		
● Síntomas en caso de desajuste	El reproductor no enfoca y la señal de RF contiene perturbaciones.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 6, (FCS ERR). [Ajustes] 5 mV/división 10 ms/división modo de CC	● Estado del reproductor	Modo de prueba, parado (con el interruptor de alimentación en ON)
		● Lugar de ajuste	VR103 (FCS OFS)
		● Disco	No es necesario

[Procedimiento]

Ajuste VR103 (FCS OFS) de forma que la tensión de CC de TP1, patilla 6, (FCS ERR) sea de –50 ± 50 mV.

2. Ajuste de retícula

● Objetivo	Alineación de los puntos del haz lasérico de generación de error de seguimiento al ángulo óptimo en la pista		
● Síntomas en caso de desajuste	La reproducción no se inicia, la búsqueda de canciones es imposible, las pistas se saltan.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 2, (TRK ERR) a través de un filtro de paso bajo. (Consulte la figura 2)	● Estado del reproductor	Modo de prueba, servos de enfoque y del eje cerrados, y servo de seguimiento abierto
	[Ajustes] 50 mV/división 5 ms/división modo de CC	● Lugar de ajuste	Ranura de ajuste de retícula del captor
		● Disco	Disco de 12 cm. (El disco YEDS-7 no podrá emplearse.)

[Procedimiento]

1. Mueva el captor hasta el borde exterior del disco con la tecla TRACK/MANUAL SEARCH FWD ▶▶/▶▶| o |◀◀/◀◀ de forma que la ranura de ajuste de la retícula quede en el borde exterior del disco, donde puede ajustarse.
2. Presione la tecla PGM, y después la tecla PLAY ▶, por este orden, a fin de cerrar el servo de enfoque y después el servo del eje.
3. Inserte un destornillador normal en la ranura de ajuste de la retícula y ajuste la retícula hasta encontrar el punto nulo.
   Para más detalles, consulte la página siguiente.
4. Si gira lentamente el destornillador hacia la izquierda desde el punto nulo, la amplitud de la onda aumentará gradualmente. Después, si continúa girando el destornillador, la amplitud de la onda se volverá otra vez más pequeña. Gire el destornillador hacia la izquierda desde el punto nulo y ajuste la retícula al primer punto en el que la amplitud de la onda alcance su valor máximo.

   Referencia: En la figura 3 se muestra la relación entre el ángulo del haz de seguimiento con la pista y la forma de onda.

   Nota: La amplitud de la señal de error de seguimiento será de aproximadamente 3 Vp-p (cuando se emplee un filtro de paso bajo de 39 kΩ , 0,001 µF). Si esta amplitud es extremadamente pequeña (2 Vp-p o menos), es posible que el objetivo esté sucio o que el captor esté funcionando mal. Si la diferencia entre la amplitud de la señal de error en el borde interior y exterior del disco es superior al 10%, la retícula no estará ajustada al punto óptimo, por lo que tendrá que volver a ajustarla.
5. Devuelva el captor hasta la mitad más o menos del disco con la tecla TRACK/MANUAL SEARCH REV |◀◀/◀◀, presione la tecla PAUSE ❚❚, y vuelva a comprobar si en el panel frontal se visualizan el número de canción y el tiempo transcurrido. Si no se visualizan esta vez, o si el tiempo transcurrido cambia irregularmente, vuelva a comprobar el punto nulo y ajuste otra vez la retícula.

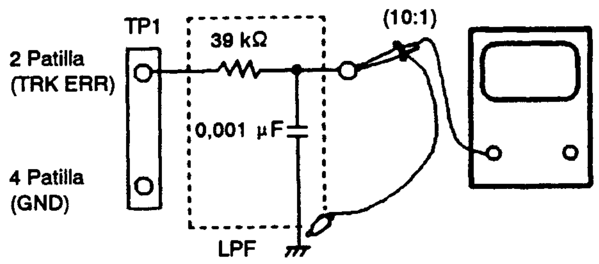
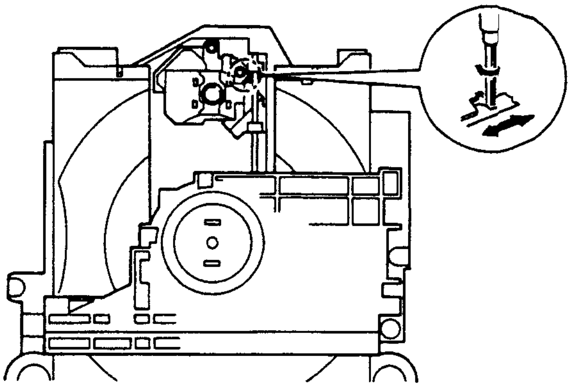


Figura 2



Lugares de Ajuste

[Cómo encontrar el punto nulo]

Cuando inserte el destornillador normal en la ranura para el ajuste de la retícula y cambie el ángulo de la misma. La amplitud de la señal de error de seguimiento de TP1, patilla 2, cambiará. Dentro del margen para la retícula existen cinco o seis lugares en los que la amplitud alcanza el valor mínimo. De estos cinco o seis lugares, solamente hay uno en el que la envolvente de la forma de onda es uniforme. Este lugar es donde los tres haces lasércos divididos por la retícula se encuentran exactamente sobre la misma pista. (Consulte la figura 3.) Este punto se denomina punto nulo. Cuando ajuste la retícula, este punto se encontrará y empleará como posición de referencia.

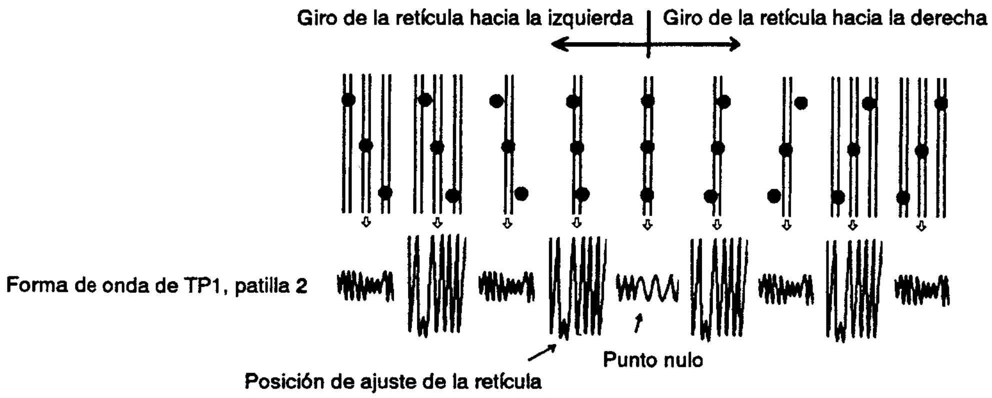
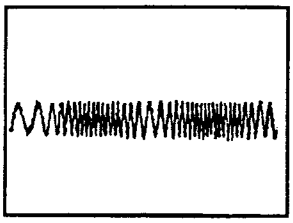
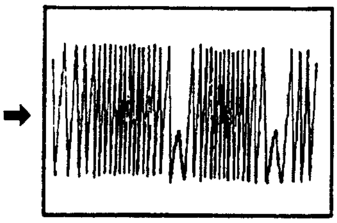

Giro de la retícula hacia la izquierda
Giro de la retícula hacia la derecha
Forma de onda de TP1, patilla 2
Punto nulo
Posición de ajuste de la retícula

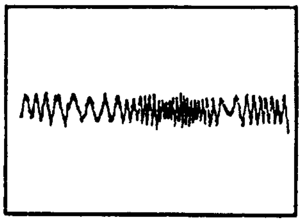
Figura 3



Forma de onda del punto nulo



Forma de onda de amplitud máxima



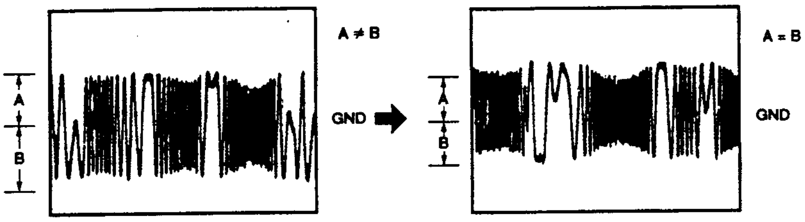
Forma de onda que no es el punto nulo

3. Ajuste del equilibrio de error de seguimiento

● Objetivo	Corrección de la variación de la sensibilidad del fotodiodo de seguimiento		
● Síntomas en caso de desajuste	La reproducción no se inicia o la búsqueda de canciones es imposible.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 2, (TRK ERR). Esta conexión puede realizarse a través de un filtro de paso bajo. [Ajustes] 50 mV/división 5 ms/división modo de CC	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, servos de enfoque y del eje cerrados, y servo de seguimiento abierto VR102 (TRK BAL) YEDS-7

[Procedimiento]

1. Mueva el captor hasta la mitad del disco (R = 35 mm) con la tecla TRACK/MANUAL SEARCH FWD ►►/►►| o |◄◄/◄◄.
2. Presione la tecla PGM, y después la tecla PLAY ►, por este orden, a fin de cerrar el servo de enfoque y después el servo del eje.
3. Haga coincidir la línea brillante (masa) del centro de la pantalla del osciloscopio y ponga éste en el modo de CC.
4. Ajuste VR102 (TRK BAL) de forma que la amplitud positiva y la negativa de la señal de error de seguimiento de TP1, patilla 2, (TRK ERR) sean iguales (en otras palabras, de forma que no haya componente de CC).



Cuando hay componente de CC

Cuando no hay componente de CC

4. Ajuste de la inclinación en sentido radial/tangencial del captor

● Objetivo	Ajustar el ángulo del captor en relación con el disco de forma que los haces laséricos incidan perpendicularmente sobre el mismo a fin de poder leer con la mayor exactitud las señales de RF.		
● Síntomas en caso de desajuste	Sonido quebrado, algunos discos pueden reproducirse pero otros no.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 1, (RF). [Ajustes] 20 mV/división 200 ns/división modo de CA	● Estado del reproductor	Modo de prueba, reproducción
		● Lugar de ajuste	Tornillo de ajuste de la inclinación radial y tornillo de ajuste de la inclinación tangencial
		● Disco	Disco de 12 cm. (El disco YEDS-7 no podrá emplearse.)

[Procedimiento]

1. Mueva el captor hasta el borde exterior del disco con la tecla TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| o |◀◀ / ◀◀ de forma que puedan ajustarse los tornillos de inclinación radial/tangencial.
   Presione la tecla PGM, la tecla PLAY ▶, y después la tecla PAUSE ❚❚, por este orden, a fin de cerrar el servo de enfoque, después el servo del eje, y por último para poner el reproductor en el modo de reproducción.
2. En primer lugar, gire el tornillo de ajuste de inclinación radial con una llave hexagonal M 3 mm hasta que el patrón ocular (la forma de diamante del centro de la señal de RF) pueda verse con la mayor claridad.
3. A continuación, ajuste el tornillo de ajuste de inclinación tangencial con una llave hexagonal M 3 mm hasta que el patrón ocular (la forma de diamante del centro de la señal de RF) pueda verse con la mayor claridad (figura 5).
4. Vuelva a girar el tornillo de ajuste de inclinación radial y el tornillo de inclinación tangencial hasta que el patrón ocular pueda verse con la mayor claridad. Si es necesario, ajuste alternativamente los dos tornillos hasta que el patrón ocular pueda verse con la mayor claridad.

   Nota: Radial y tangencial significan las direcciones en relación con el disco mostrado en la figura 4.

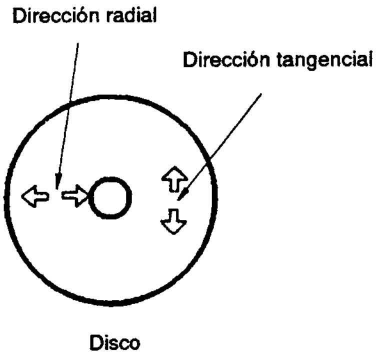
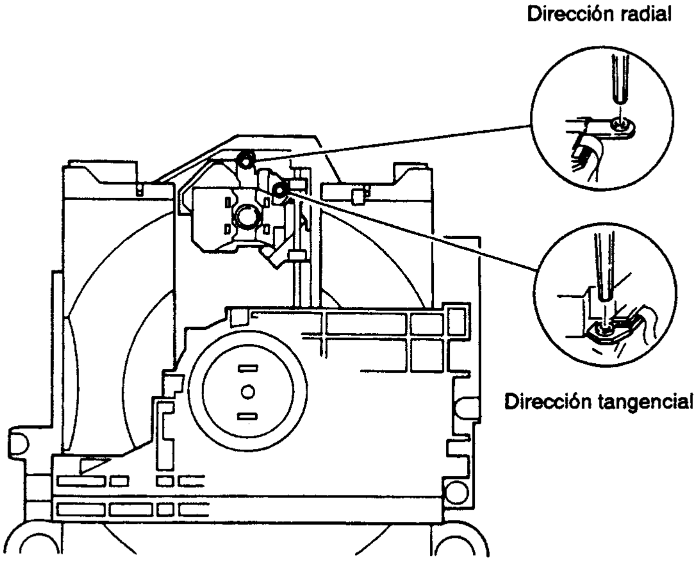


Figura 4



Lugares de Ajuste

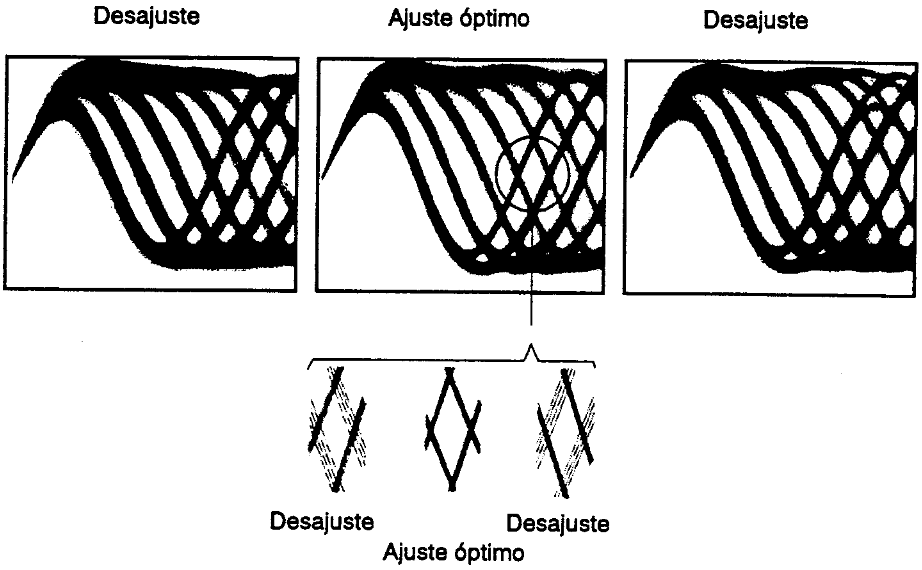

Desajuste
Ajuste óptimo
Desajuste
Desajuste
Desajuste
Ajuste óptimo

Figura 5 Patron Optico

5. Ajuste del nivel de RF

● Objetivo	Optimización de la amplitud de la señal de RF de reproducción		
● Síntomas en caso de desajuste	La reproducción no se inicia o la búsqueda de canciones es imposible.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 1, (RF). [Ajustes] 50 mV/división 10 ms/división modo de CA	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción VR1 (potencia de láser) YEDS-7

[Procedimiento]

1. Mueva el captor hasta la mitad del disco (R = 35 mm) con la tecla TRACK/MANUAL SEARCH FWD ▶▶/▶▶| o |◀◀/◀◀, presione la tecla PGM, depués la tecla PLAY ▶, por este orden a fin de cerrar los servos respectivos, y ponga el reproductor en el mode de reproducción.
2. Ajuste VR1 (potencia de láser) de forma que la amplitud de la señal de RF sea de 1,2 Vp-p ± 0,1 V.

6. Ajuste de la ganancia del bucle del servo de enfoque

● Objetivo	Optimización de la ganancia del bucle del servo de enfoque		
● Síntomas en caso de desajuste	La reproducción no se inicia o el actuador de enfoque produce ruido.		
● Conexión de los instrumentos de medición	Consulte la figura 6. [Ajustes] CH1: 20 mV/división, Modo X-Y CH2: 5 mV/división	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción VR152 (FCS GAN) YEDS-7

[Procedimiento]

1. Ajuste la salida del generador de AF a 1,2 kHz y 1 Vp-p.
2. Presione la tecla TRACK/MANUAL SEARCH FWD ▶▶/▶▶| o |◀◀/◀◀ para mover el captor hasta la mitad del disco (R = 35 mm), y después presione la tecla PGM, la tecla PLAY ▶, y después la tecla PAUSE ❚❚, por este orden, a fin de cerrar los servos correspondientes y poner el reproductor en el modo de reproducción.
3. Ajuste VR152 (FCS GAN) hasta que la forma de onda de Lissajous sea simétrica alrededor del eje X y el eje Y.

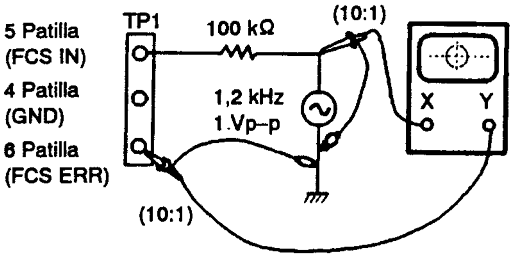
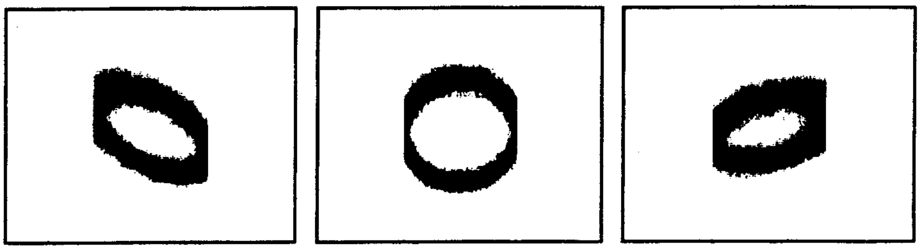


Figura 6

Ajuste de la ganancia de enfoque



Ganancia superior　Ganancia óptima　Ganancia inferior

7. Ajuste de la ganancia del bucle del servo de seguimiento

● Objetivo ● Síntomas en caso de desajuste	Optimización de la ganancia del bucle del servo de seguimiento La reproducción no se inicia, el actuador de enfoque produce ruido, o se saltan pistas.		
● Conexión de los instrumentos de medición	Consulte la figura 7. [Ajustes] CH1 CH2 50 mV/división 50 mV/división Modo X-Y	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción VR151 (TRK GAN) YEDS-7

[Procedimiento]

1. Ajuste la salida del generador de AF a 1,2 kHz y 1 Vp-p.
2. Presione la tecla TRACK/MANUAL SEARCH FWD ►►/►►| o |◄◄/◄◄ para mover el captor hasta la mitad del disco (R = 35 mm), y después presione la tecla PGM, la tecla PLAY ►, y la tecla PAUSE ❚❚, por este orden, a fin de cerrar los servos respectivos y poner el reproductor en el modo de reproducción.
3. Ajuste VR151 (TRK GAN) hasta que la forma de onda de Lissajous sea simétrica alrededor del eje X y el eje Y.

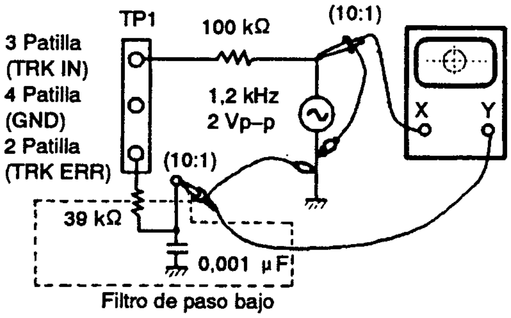
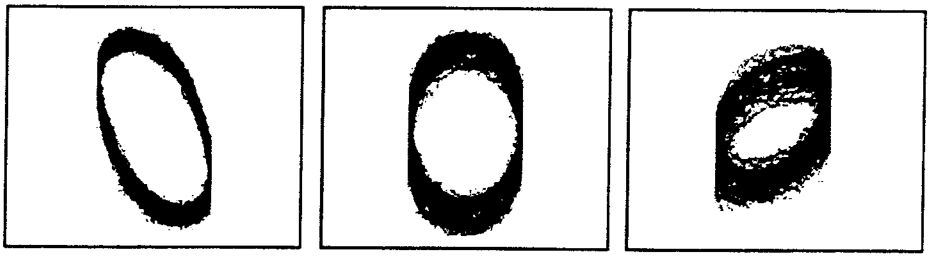


Figura 7

Ajuste de la ganancia de seguimiento


Ganancia superior

Ganancia óptima

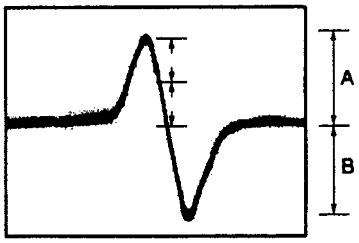
Ganancia inferior

8. Verificación de la señal de error de enfoque (curva S de enfoque)

● Objetivo	Juzgar si el captor est'a bien o no observando la señal de error de enfoque. El captor se juzga por la amplitud de la señal de error de seguimiento (como se ha indicado en la sección sobre el ajuste del equilibrio de error de seguimiento) y la forma de onda de la señal de error de enfoque.		
● Síntomas en caso de desajuste			
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 6, (FCS ERR).	● Estado del reproductor	Modo de prueba, parada
	[Ajustes] 100 mV/división 5 ms/división modo de CC	● Lugar de ajuste	Ninguno
		● Disco	YEDS-7

[Procedimiento]

1. Conecte TP1, patilla 5, a masa.
2. Coloque el disco.
3. Contemplando la pantalla del osciloscopio, presione la tecla PGM y observe durante un momento la forma de onda de la figura 8. Verifique si la amplitud es de 2,5 Vp-p por lo menos y si la amplitud de las partes positiva y negativa son iguales. Como la forma de onda solamente sale durante un momento cuando se presiona la tecla PGM, presione una y otra vez esta tecla hasta que logre comprobar la forma de onda.



A = B
A + B ≧ 2,5 Vp–p

Figura 8

[Juicio sobre el captor]

No juzgue el captor hasta haber finalizado correctamente todos los ajustes. En los casos siguientes es posible que haya algo erróneo en el captor.

1. La amplitud de la señal de error de seguimiento es extremadamente pequeña (menos de 2 Vp-p).
2. La amplitud de la señal de error de enfoque es extremadamente pequeña (menos de 2,5 Vp-p).
3. Las amplitudes de las partes positiva y negaiva de la señal de error de enfoque son extremadamente asimétricas (relación de 2:1 o superior).
4. La señal de RF es demasiado pequeña (menos de 0,8 Vp-p) y aunque se ajuste VR1 (potencia de láser), la señal de RF no puede aumentarse hasta el nivel estándar.